REGULATIONS affecting the MOVEMENT AND MERCHANDISING OF MILK

A STUDY of the impact of

Sanitary Requirements,

Federal Orders,

State Milk Control Laws,

and Truck Laws

on Price, Supply, and Consumption

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Preface

The study on which this report is based was undertaken to supply a need for information on regulatory impediments to increased consumption of milk. When the study was proposed, the Government for about 2 years had been accumulating large and growing stocks of dairy products. To expand the consumption of fluid milk seemed the best way to reduce these stocks and bring satisfactory returns to producers. But in exploring the opportunities for this, questions arose repeatedly about laws, regulations and controls that restrict these opportunities.

It appeared that there was need to examine objectively what the impediments are, which are subject to modification, what consequences might ensue, and what types of policy questions might justifiably be raised with respect to them.

The project was carried out under the direction of Harry C. Trelogan, Director, Marketing Research Division, and Louis F. Herrmann, Head, Dairy Section, Marketing Organization and Costs Branch. Anthony G.Mathis, Robert E. Olson, Margaret Purcell, Jack E. Klein and Jean Burnette, all of the Dairy Section, devoted all or nearly all of their time to the study. Others in the Department who in various ways assisted in planning and conducting the study included P. E. O'Donnell, Dairy Statistics Branch, AMS; Anthony S. Rojko, Statistical and Historical Research Branch, AMS; Raymond W. Bell, Eastern Utilization Research Branch, ARS; Julius C. Krause, Office of the General Counsel; Clem C. Linnenberg, Jr., and Hugh S. Norton, Transportation and Facilities Branch, Marketing Research Division, AMS; and representatives of the Dairy Division, AMS.

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SUMMARY AND CONCLUSIONS

The study on which this report is based has two principal objectives: to determine whether and how much various types of laws and regulations interfere with, burden, or obstruct the movement of milk; and whether and how much they interfere with the adoption of less costly or more effective marketing methods. Where possible, the study measures the effect of regulations on price, production, and consumption.

Regulations of one type or another accounted for most, but not all, of the amount by which prices to milk producers were above a Midwestern base price plus an allowance for transfer costs in 1953–54. If these regulations were modified to permit the free movement of milk, prices to about one-fourth of the producers of fluid milk in the United States would probably decline an average of about 48 cents per hundred pounds. In some markets the declines would range up to 75 cents to one dollar per hundred pounds.

However, these declines would be offset to some extent by an expected increase of about a quarter billion pounds in consumption of fluid milk. The increase in the total long distance movement of milk would be relatively small, partially because price incentives would be lessened as regulations were modified.

Sanitary regulations hinder or prevent the movement of milk into a substantial number of cities. Some markets prohibit outright the entry of milk from beyond specified limits. Others burden such entry by insisting on their own inspection and then delay or refuse to inspect, or levy discriminatory fees. Still other markets differentiate their regulations from those of surrounding areas without apparent necessity.

Sanitary regulations do not unduly burden the movement of milk where consistent with requirements most widely regarded as essential. Neither do they have this effect in areas where authorities inspect milk promptly whenever and wherever requested or accept milk produced and processed under effective supervision of other areas that have about the same regulations. In a majority of cities sanitary regulations either were not considered unduly restrictive, or did not result in prices out of line with those at potential sources of milk.

State milk controls over the prices to producers use a variety of restrictive measures and policies, mainly to offset their inability to control prices paid for milk purchased in another State. The State control act or the orders issued under it may establish the limitation, or the administration of sanitary or other laws of the State may be coordinated with the price control program. In part, the difficulties with out-of-State milk are a result of efforts to maintain State prices above a level at which milk from out-of-State sources, priced on a classified price basis, would be available. But if out-of-State milk is unregulated, it may be available at manufacturing milk prices, or at "blend" prices. In such cases, a State would have difficulty in main-

taining its own prices even if they were in line with prices of milk available from outside sources under comparable classified price plans.

State milk controls over resale prices tend to limit the opportunities for introducing innovations in marketing methods and practices, or for using aggressive methods for promoting sales. The prices that are set, and the differentials for type of product, container, or service give the control agency power to favor or discourage one method or another. The regulations of trade practices, needed to make the price regulation effective, also tend to curb merchandising efforts.

Federal milk marketing orders, issued by the Secretary of Agriculture upon approval by producers of milk for the market which is to be regulated and after a hearing is held, establish minimum prices which dealers in specified marketing areas must pay to producers under classified price plans. They contain some provisions which may be so written as to be unduly restrictive. Among the latter are terms establishing the basis on which plants may participate in market-wide pools; fixing the rate of compensatory payment on unpooled milk; and fixing the differential in price for plants at a distance from market.

The general policy has been for the Federal orders to avoid requirements which might unduly impede the movement of milk: "new producer" provisions authorized by the Marketing Agreements Act have been omitted; base and surplus price provisions avoid restrictive rules; and it has not been required that all milk sold in the marketing areas be subject to all the provisions of the marketing order.

Market-wide pools require some protection against the entry of plants which are more interested in receiving equalization payments than in supplying the market with Class I milk. This is obtained by establishing performance requirements for pool plants, and requiring a compensatory payment into the pool for unpooled milk which enters the market. The amount of payment may be kept to a minimum by computing it on some basis other than manufacturing milk values in some circumstances, by not requiring the payment to be made when the quantity of pool milk is low relative to Class I sales, and by allowing for transportation from the plant at which the milk is first received from producers.

Differences between States in highway load limits for trucks and lack of universal reciprocity for licenses add to trucking costs. These were not cited by dairy company officials as material factors affecting the movement of milk. However, most long distance movement of milk is by truck. The delivered price of milk shipped from Wisconsin to New York consists of about 35 percent for transportation and 65 percent value of milk. A 10-percent reduction in transportation costs would be equivalent to nearly one-half cent a quart at such distances.

There are indications of a trend toward less restrictiveness in sanitary regulations, though many of the motives for making them restrictive are still at work. Reports of restrictions repealed or successfully challenged in court outnumbered those upheld or newly enacted about 2 to 1 in 1946–54. The expansion of distribution areas has brought about a reduction in the number of obstacles, but intermarket movement of bulk milk still tends to be more or less free as local supplies are short or plentiful. Work of the National Conference on Interstate Milk Shipments, and rising professional qualifications of milk sani-

tarians are tending to correct some of the conditions that restrict the movement of milk.

In this study, the regulations affecting the movement of milk were evaluated in terms of their estimated effects on prices. The basis for price analysis was the assumption that, if milk could be moved freely, prices could not differ among markets by much more than the cost of transportation. The effect which restraints on merchandising have on prices and consumption could not be estimated quantitatively, owing to lack of suitable quantitative data on nearly all the relationships concerned. One can only arrive at general conclusions as to whether a given regulation curbs some merchandising practice.

The effects of regulations on prices were estimated by first calculating the relationship between dealers' buying prices for milk for fluid use and distance from areas in which prices were low. Prices in 143 cities east of the Rockies during July 1953–June 1954 were related to distance from Wisconsin (Eau Claire) and found to increase 1.92 cents per hundred pounds for each 10 miles of distance. This is comparable to rates quoted by four large milk hauling firms, which ranged from 1.75 to 2.0 cents per hundred pounds per 10 miles.

The next step was to visit a number of cities whose prices to producers were substantially above the average relationship to learn the extent to which the difference was explained by the existence of local regulations of one type or another. One or more of several conditions were found in each of these markets: sanitary standards which were expensive to meet; lack of reciprocity of sanitary inspections; prices fixed by a control agency on the basis of criteria other than the potential availability of supplies; or restrictive licensing policies or fees.

On the other hand, in some of these markets part of the difference in price was explained by conditions unlikely to be affected by any change in regulations, including: Relative isolation and unfavorable production conditions in the supply area; relatively small size of market; differences in the services performed by producers' cooperatives; and features of the competition in the market.

Considering all these factors, an estimate was made for each city of the price change which would follow modification of the regulations. The estimated changes were generalized to areas of one or more States and to the United States using data on nonfarm population and estimates of per capita rates of consumption.

REGULATIONS AFFECTING THE MOVEMENT AND MERCHANDISING OF MILK

INTRODUCTION

Lack of balance between the supplies of milk and dairy products and the quantities which consumers were willing to buy at support prices has been a cause of serious concern in recent years. Many agencies have worked at its solution by finding ways of reducing marketing costs so that milk and dairy products could be offered to consumers at the lowest price consistent with satisfactory prices to farmers, by improving the products and related services so they would better meet consumers' wants, and by promotional activities to persuade consumers of the advantages of using these products.

Local, State, and Federal governments have shared in the concern over the dairy surpluses, and have supported the search for solutions. But there has been considerable concern that while governmental research and educational programs were trying to find ways of reducing marketing costs and of stimulating demand, other governmental activities, principally sanitary and economic regulations, may be having contrary effects.

PURPOSE AND SCOPE OF STUDY

The purpose of the study on which this report is based was to determine whether, and to what exent, various types of laws and regulations interfere with, burden, or obstruct the movement of milk or the trial and adoption of less costly or more effective marketing methods.

Measuring Restrictive Effects

The *extent* of the interference is crucial in evaluating whether a given regulation is unduly restrictive. Taylor, Burtis, and Waugh said that the restriction lay in making it "*unnecessarily* difficult for distant farmers or dealers to get their products on the local market." (*56*, p. 2) [1] Truitt *et al.* indicated that the problem arises from laws that "*substantially* hinder * * * commerce * * * without * * * *preponderant* benefits (*60*, Forward); and DeLoach stressed *unreasonable* discrimination (*26*). All these definitions imply that difficulty for, hindrance to, or discrimination against, sales by distant farmers is not by itself cause for public concern. A regulation is to be questioned only if its restrictive effect is disproportionate to the essential benefit, or if other available measures would be less restrictive. Regulations which unduly restrict the marketing of milk tend to raise the

[1] Italic figures in parenthesis refer to items in Literature Cited.

price of milk in the protected market. It is possible therefore for certain regulations to raise prices beyond the level which the public interest requires. This would tend to encourage excessive production, discourage consumption, and add to the surplus.

Measuring the effect of regulations on price, production, and consumption is fraught with great difficulty. A research project of modest size could not be expected to consider all the factors in milk pricing as carefully and minutely as is possible under the administrative machinery of hearings and analysis that may enter into the fixing of minimum prices under Federal and State milk control programs. Consequently, for this project a broader approach was necessary. The procedure here was to apply as criteria certain conditions and estimates of prices which might be expected to exist in markets subject to a minimum of regulation, and to evaluate existing conditions by such a standard. This procedure gives only an approximation of the prices that might exist in the absence of undue restriction. But it affords an opportunity to discuss the more important respects in which reality may differ from some concept of perfection. The basis on which the price estimates are made are described, and the report affords an opportunity for appraisal of specific aspects of the procedure followed.

Restrictive Effects of Regulations Compared With Constructive Objectives

Any comprehensive evaluation of milk regulations must go beyond their restrictive effects. The importance of their more constructive purposes, and the effectiveness of alternative methods for doing the job must also be considered. Where, in the range of 300,000 to 25,000 bacteria per milliliter of raw milk for pasteurization, does a standard become unreasonable? This depends on the public health significance of the standard as well as on its effect in curtailing the movement of milk. Fixing resale prices for milk is alleged by some to be necessary if prices to producers are to be fixed successfully. Does it result in such restraints on marketing innovations as to cause greater public detriment than gain? One effect of compensatory payments is to make it possible for part of a plant's milk to remain free of Federal order regulation even though some sales are made in a regulated area. Are such payments so objectionable that the only acceptable choice lies between complete regulation of prices and complete elimination of the regulation?

Products and Regulations Included

The study concerns primarily the marketing of milk for use as fresh whole milk. Brief attention is given to other products, particularly cream and products closely competitive with fluid milk.

The kinds of regulations covered include sanitary regulations; standards of composition, identity and measure; price controls; and transportation regulations. These are types of regulations which are most commonly considered to burden or obstruct the entry of milk into any market, or which may discourage or prevent the adoption of less costly or more effective marketing methods. Regulations which establish prices, and the policies governing the levels of prices established, were of concern in this study, but in a special sense. If a price

regulation offered an incentive for milk to move among markets, the incidental provisions of the regulation which might impede the movement were of concern. If the price was too low to attract milk from other sources, no further consideration was given to the policy by which the price was established, even though there might be other criteria by which the price might be judged to be too high.

METHODS OF STUDY

The research methods used in the study were chosen to provide as much dependable information as possible within the time and facilities available. Secondary sources of information were supplemented by a limited program of mail and personal interviews.

Available published reports and data on the problem were read and summarized. Some recent research was relied on heavily for descriptions of existing legislation.

Health officers were surveyed by mail for information about certain types of restrictive regulations, and about policies of reciprocity.

Personal visits were made to about 40 cities, where milk dealers, plant operators, officials of producers' associations, milk control officials and health officials were interviewed—a total of about 120 personal interviews. The visits were made largely during December 1954 and January 1955.

Prices in about 160 cities were studied to obtain leads as to where unusually restrictive regulations were most likely to be found. A score or more of these cities had prices which seemed attractive for long-distance shipments of milk. The 14 largest cities of this latter group were visited and inquiries made to learn the extent to which regulations appeared to account for, or to protect, the existing price differential.

A number of plants known to have been important sources of emergency milk supplies were visited for additional information as to restrictive regulations which they encountered.

Finally, milk dealers were asked about any regulations which limited their areas of distribution, or their choices of processing, pricing, and distribution methods.

Regulations may not account for all of a difference between an actual price and an assumed free market price. Policies or practices of producer groups, dealers, or labor organizations may be factors also. Such aspects of milk marketing have been the target of numerous investigations by the Congress, the Federal Trade Commission, and the Department of Justice. They were excluded from this study as specific objectives, but it must be recognized that where such forces are present removing restrictive regulations might weaken but would not eliminate them.

WHEN DO REGULATIONS BECOME BARRIERS?

Regulations, sanitary, economic or other, which unduly restrict the marketing of milk are frequently called trade barriers. As indicated above (p. 1), it is usually recognized that any law or regulation establishes a limit or boundary between legal and illegal transactions and, in this sense, is a "barrier" to illegal transactions. However, the term

"trade barrier" usually implies discrimination among individuals or firms according to their location or vested interest.

To set up two categories of regulations, those regulations which are "trade barriers" and those which are not, is to oversimplify the situation. The problem is a matter of degree. Every regulation has to be considered from the standpoint of its benefits—such as protection against adulteration and fraud, dishonest business practices, the spread of disease, or protection of the income of dairy farmers—as well as from the standpoint of its constricting effects on trade.

Taylor, Burtis, and Waugh point out that "free trade" should not be confused with "unregulated trade." They used "free trade" to "mean a situation in which (1) each State and each market in each State admits any healthful and honestly described products from any part of the country without any kind of discrimination on account of the location of the producer or dealer, and (2) . . . laws and regulations that are as simple as possible and as uniform as possible in order that a shipment that is acceptable in one market will also be acceptable in any other market in the country" (*56*, p. 2).

Probably most regulations for milk are intended for purposes which few would question. On the other hand, it is apparent that some are intended to raise barriers against distant competitors. These are the ones which deserve the stigma of "trade barrier."

However, a distinction based on intent is most difficult to apply, and this is hardly a feasible guide to needed improvements. The issue is not whether a regulation is or is not a trade barrier, but whether it has detrimental effects in the form of higher prices, reduced consumption, and economic stagnation which outweigh such benefits as higher incomes to farmers and market stability. Due consideration must be given to the interests of the general public and of different industry groups.

Whether a regulation is or is not unduly restrictive may depend partly on the circumstances in which it is applied, and partly on the policies of those administering it. Thus, a city's refusal to inspect milk produced outside the State may be of no practical consequence when supplies within the State greatly exceed requirements, particularly if prices are allowed to reflect the situation. The same regulation might be highly restrictive in circumstances where prices and pricing arrangements were established without regard to supply responses. Under most health ordinances, the health officer has discretion as to the frequency of farm inspections. With a fixed budget for inspection work, he may refuse to inspect additional producers in order to maintain the desired frequency of inspection, or he may reduce the frequency of inspection in order to inspect all applicants. Thus, administrative policy, rather than law or regulation, may determine whether entry into the market is restricted.

PREVIOUS CONCERN OVER REGULATIONS

Concern over regulations affecting the movement and merchandising of milk is not new. Similar concern existed during the 1930's and numerous studies of the subject were made by various agencies. These earlier studies form an important background for the present work,

because of both similarities and differences between conditions today and those of the prewar years.

Sanitary regulations were among the topics dealt with in the 1930's by the Federal Trade Commission in a series of inquiries into the sale and distribution of milk (*70*, *71*, *72*, *73*, *74*). One of the Commission's reports concluded that "Uniform inspection requirements of a reasonable nature with respect to milk flowing in either intrastate or interstate commerce, would react to the benefit of the dairy industry, reduce costs, and should reflect savings to the consumer" (*73*). The Summary report of the series noted that local authorities had endeavored to see that the consuming public was supplied with wholesome milk produced, handled, and delivered under sanitary conditions, but also that milk regulations and inspection rules had been used to influence prices paid to producers for milk (*74*).

The New England Research Council undertook a study of milk inspection in New England in the mid-1930's. It published reports summarizing the provisions of the laws and regulations in effect in the region, the costs of the service, and other factual material (*14*, *21*, *22*, *43*). The first report in the series stated that the final use of the information would be "to determine, if possible, the influence of inspection upon the flow of milk from producer to consumer." That report was "limited to an appraisal of the quantity and quality of milk inspection in New England. * * *" The final report intentionally avoided judging the effect of the measures on the quality of milk, and also avoided consideration of local interpretation and enforcement as they might modify the significance of the laws and regulations. The goal mentioned in the first report appears to have been considered impossible to achieve. This might serve as a warning of the difficulties, since the Experiment Stations of New England have done much outstanding dairy marketing research.

The Temporary National Economic Committee on Investigation of Concentration of Economic Power (TNEC) conducted extensive hearings on the dairy industry in 1939 and 1940 (*63*, *64*). Some witnesses testified that restrictive regulations of municipalities, counties, and States, and provisions of orders under the Marketing Agreements Act of 1937 placed hurdles before potential supplies.

Milk and dairy products were not alone among agricultural products whose movement was subject to restrictive regulations prior to World War II. Nor were sanitary regulations the only class of regulations accused of being unduly restrictive. Taylor, Burtis, and Waugh reported a study by the U. S. Department of Agriculture on barriers to internal trade in margarine and alcoholic beverages, specifically, and on measures applying to a wide range of agricultural products, including dairy products (*56*).

The Work Projects Administration carried out a survey of State laws directly affecting the marketing of goods from the point of production to the point of consumption. One volume of the report was devoted to milk and dairy legislation (*44*). The types of regulation summarized by this report included: State milk control (of prices and related aspects of milk marketing); licensing of producers, milk plants, etc.; standards of identity and composition; sanitation provisions; containers; method of testing for butterfat content; grades for

milk and cream; and statutory provisions respecting manufactured dairy products and imitations of dairy products.

State laws designed to effect economic control of the market milk industry were analyzed by Rada and DeLoach during this period (*52*). The authors were of the opinion that prior to 1929, State milk laws were primarily to prevent unwholesome milk from entering consumption channels. Much of the subsequent legislation, they said, was primarily to better or to maintain the economic status of a particular group in the milk industry. Numerous examples of ways in which States and municipalities apparently were able to use health measures to discriminate against certain groups are cited in the report. The authors concluded that "* * * whether regulations are primarily social or economic, legal controls are usually justified on the premise that milk is a necessity."

A 1943 report on Trade Barriers in the Food Industry concluded that four types of regulations were substantially hindering the production and distribution of milk and cream at the time (*60*). These were license requirements, construction standards, Grade A standards, and local jurisdiction. This report drew heavily on previous studies for supporting data.

Many other reports from the period 1934–41 might be cited to show the widespread concern over the problem: (*8*, *9*, *23*, *29*, *31*, *33*, *42*, *45*, *46*, *47*, *52*, *54*, *76*, *80*).

RECENT RESEARCH ON MILK REGULATIONS

Since World War II a number of studies have resulted in reports of great significance for the subject of this study. Availability of these reports was taken into consideration in planning the present study. They are referred to frequently, and should be consulted for facts about, and analysis of, many aspects of the sanitary and economic regulation of milk.

Dahlberg and Adams tabulated some details of the laws and ordinances of the 48 States, and of 84 of the 92 cities with populations of 100,000 or more in 1940 (*24*). The principal tables in the report give 37 columns of information concerning sanitation and quality standards on the farm, 10 columns concerning milk pasteurization plants, and 18 columns concerning sanitary standards for ice cream. The report thus presents, on a nationwide basis an indication of the diversity of sanitary standards existing in 1949.

Dahlberg, Adams and Held subsequently reported an investigation of sanitary milk control and its relation to the sanitary, nutritive and other qualities of milk (*25*). The work consisted of field and laboratory studies to obtain information on the city ordinances and their enforcement; on the general compliance of milk producers and distributors with the regulations; on various sanitary practices and conditions; on the sanitary quality of fresh raw milk intended for pasteurization; and on the sanitary quality, nutritive value and other significant characteristics of the pasteurized milk. Eight cities were selected, well scattered over the United States, to give representation typical of most of the major geographic areas. One city was studied in winter and summer to show the effect of climatic conditions. The authors described the 7 factors which they consider to be basic for

insuring a wholesome milk supply and concluded that there is need for only a limited number of regulations to achieve the basic requirements.

Hillman, Rowell, and Israelson reported on barriers to the interstate movement of milk and dairy products in the eleven Western States (*35*). Of all the reports available, this one provides the most comprehensive presentation of regulatory restrictions. It deals with all categories of restrictive regulations, and for most categories it provides both tabular information and analytical discussion. State milk control, however, was treated only briefly, and without description or analysis. The report concludes with a discussion of possible methods to be used in removing those interstate trade barriers which were found to be present.

The United States Department of Agriculture through contract with the Doane Agricultural Service conducted a 3-year study of 9 farms in the St. Louis milkshed to find ways of achieving effective milk sanitation with minimum expense (*30*). It was found that with good practices, milk of high quality can be produced with a relatively low investment in buildings, and with half or less labor than is commonly used on farms. It was clearly indicated that sanitation practices predominate over features of structures or of regulations that prescribe specific details of buildings and equipment as factors influencing the quality of milk.

Federal milk orders have been studied from the standpoint of alleged discrimination between "pool" and "nonpool" plants and producers. A committee of college and dairy industry representatives—producers and distributors—reported its findings in the fall of 1954 (*28*). The committee concluded with respect to prices that the orders had maintained an adequate supply of milk and that this was the primary purpose of the orders. It was further concluded that Federal orders had not increased production more than had occurred in other parts of the country. With respect to the movement of milk and milk products into markets, the committee was divided, 10 in favor and 3 against, as to the necessity for compensatory payments and assignment of classification provisions. It was agreed that such provisions might be so used to limit the supply of milk fully priced and pooled in a market that the volume of such milk would not serve as a reliable indicator for sound pricing. But no evidence was developed to indicate that such provisions had been abused. The committee also considered and gave general approval to procedures and services used in administering the program, although it recommended a few specific changes.

State milk control was the subject of a series of studies by Agricultural Experiment Stations of the Northeast in recent years. The results have been summarized by Spencer and Christiansen (*55*). These reports were intended as a general review and appraisal of State milk control. Restrictive features of such programs are discussed in the whole context of milk marketing problems and the devices used by the States in solving them.

Barriers to increased consumption of milk in a broad sense were discussed in a recent report by the National Grange (*58*). The Grange

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cited eight barriers: weak merchandising, complacency and resistance to change, lack of industrywide coordination, labor practices, misused sanitary regulations, wholesale and retail milk price control, confusion and conflict under various Federal laws, and Americans' calorie consciousness. The solution, it is suggested, is through research, education and vigorous leadership. Progress will not be quick, easy or unattended by controversy, but the future prosperity of the dairy industry, it is asserted, is at stake.

RECENT DEVELOPMENTS IN MILK MARKETING

Since the 1930's, a number of developments have tended to create stresses on the present system of regulations applying to milk. During and following World War II milk was moved great distances routinely as "emergency" supplies. Following the war, many milk plants expanded their distribution areas, regularly sending bottled milk to places far beyond the limits of the towns in which the plants were located. Other innovations in pricing and marketing methods and practices established themselves firmly in many areas.

Widening Radius of Movement

The magnitude of long-distance movements of bulk milk, and some indication of trends, is shown by data from a variety of sources. These data are for only a part of the movements that are known to have taken place, but they indicate that long-distance movements of milk are feasible when price and supply conditions are favorable. Receipts at Boston, New York, and Philadelphia (the only available data covering a long period) indicate the general adequacy of sources within the region during most of the past 25 to 28 years (table 1). Shipments from Midwestern points were more to the South than to the East following World War II. An indication of the year-to-year changes in such shipments is obtained from records of several plants at which shipments originated (table 2). More comprehensive data for shipments in 1953 and 1954 have been compiled by the Administrator of Federal Order No. 41, regulating the Chicago market. These illustrate the wide seasonal variation in the quantities shipped (table 3), and the States of destination of interregional shipments in recent years (table 4).

Because of the increasing feasibility of drawing milk supplies from distant sources, sanitary and other types of regulation must give greater consideration to such movements than formerly. Washington, D. C., for example, was confronted with a shortage of local supplies during and shortly after World War II. The Health Officer was forced to authorize the admission of emergency supplies of milk though the Corporation Counsel of the District stated subsequently that his action in doing so was of doubtful legality under the health law. (*65*, p. 1593).

More challenges to restrictive local regulations have resulted from the expansion of the delivery routes for bottled or paper-packaged milk than from any other cause in recent years. In 1952, 13 States of the north-central region found that nearly 500 milk distributors were distributing paper-packaged milk outside the cities and towns

TABLE 1.—*Milk: Receipts at Boston, New York, and Philadelphia, by regions, 1927–54 (in 40-quart units)*

Year	Boston			New York			Philadelphia		
	Atlantic	North-central	Total	Atlantic	North-central	Total	Atlantic	North-central	Total
1927				34, 453, 412	704	34, 454, 116			
1928				34, 552, 562	2, 229	34, 554, 791			
1929				34, 675, 488	6, 090	[1] 34, 681, 578	7, 333, 059	20, 852	[2] 7, 433, 134
1930	6, 176, 942		6, 176, 942	34, 310, 847	1, 556	[1] 34, 312, 403	7, 388, 717	6, 600	7, 395, 317
1931	6, 416, 012		6, 416, 012	32, 146, 640	13, 038	[1,3] 35, 529, 807	7, 241, 877	1, 801	7, 243, 678
1932	6, 294, 319		6, 294, 319	33, 962, 650	14, 578	33, 977, 228	6, 837, 801	291	6, 838, 092
1933	5, 721, 550		5, 721, 550	33, 033, 719	7, 558	[4] 33, 041, 773	6, 787, 169	462	6, 787, 631
1934	5, 753, 927		5, 753, 927	31, 561, 579	1, 343	31, 562, 922	6, 998, 768		6, 998, 768
1935	5, 712, 194		5, 712, 194	31, 963, 696		31, 963, 696	7, 064, 606	1, 392	7, 065, 998
1936	5, 593, 933	4, 464	5, 598, 397	34, 039, 582	9, 672	34, 049, 254	7, 164, 191	966	7, 165, 157
1937	5, 622, 995		5, 622, 995	36, 233, 287		36, 233, 287	7, 331, 052		7, 331, 052
1938	5, 712, 887	1, 088	5, 713, 975	35, 686, 790		35, 686, 790	7, 425, 335		7, 425, 335
1939	5, 848, 790	204	5, 848, 994	37, 612, 110		37, 612, 110	8, 049, 279		8, 049, 279
1940	6, 107, 860		6, 107, 860	37, 424, 902		37, 424, 902	8, 458, 205		8, 458, 205
1941	6, 430, 226		6, 430, 226	38, 810, 039		38, 810, 039	8, 900, 428	696	8, 901, 124
1942	7, 161, 182		7, 161, 182	39, 532, 335		39, 532, 335	9, 337, 724		9, 337, 724
1943	7, 836, 768	9, 087	7, 845, 855	42, 131, 019		42, 131, 019	9, 309, 985	19, 782	9, 329, 767
1944	8, 286, 839	94	8, 286, 933	43, 410, 310		43, 410, 310	9, 790, 947	11, 162	9, 802, 109
1945	8, 821, 045	159, 538	8, 980, 583	44, 411, 895		44, 411, 895	10, 375, 590	63, 860	10, 439, 450
1946	9, 021, 983	239, 971	9, 261, 954	46, 602, 663	2, 788	46, 605, 451	10, 423, 730	49, 727	10, 473, 457
1947	8, 771, 025	139, 330	8, 910, 355	46, 479, 634	14, 160	46, 493, 794	10, 513, 617	48, 008	10, 561, 625
1948	9, 296, 761	22, 494	9, 319, 255	45, 403, 912	702	45, 404, 614	10, 475, 884	14, 913	10, 490, 797
1949	8, 958, 159		8, 958, 159	44, 729, 740		44, 729, 740	11, 026, 483	788	11, 027, 271
1950	8, 732, 871		8, 732, 871	44, 765, 074		44, 765, 074	10, 932, 492		10, 932, 492
1951	8, 769, 017		8, 769, 017	44, 917, 682	250	44, 917, 932	11, 220, 349	1, 953	11, 222, 302
1952	9, 118, 845		9, 118, 845			[5]	11, 434, 635		11, 434, 635
1953	9, 257, 329		9, 257, 329				11, 888, 983	15, 486	11, 904, 469
1954	9, 455, 354		9, 455, 354				12, 203, 733	4, 882	12, 208, 615

[1] Does not include receipts from Canada—32,553 units in 1929, 15,874 units in 1930, and 5,170 units in 1931.
[2] Includes 79,223 units for which origin is not available by States.
[3] Includes 3,370,129 units for which origin by States is not available.
[4] Includes 496 units from south-central region.
[5] Compilation of receipts discontinued July 1, 1952.

Source: Compiled from Dairy and Poultry Market Statistics, AMS.

TABLE 2.—*Annual shipments of milk from selected plants in Minnesota and Wisconsin, 1945–54* [1]

Year	Six plants—Shipments [2]	Four plants—Shipments	Year	Six plants—Shipments [2]	Four plants—Shipments
	Pounds	*Pounds*		*Pounds*	*Pounds*
1945	6,405,265		1950	10,714,849	
1946	13,149,688		1951		33,269,076
1947	8,392,904		1952		27,053,106
1948	23,504,449		1953		2,099,662
1949	14,360,346		1954		13,204,364

[1] Excludes shipments to Illinois, Minnesota, and Wisconsin destinations.
[2] Unpublished data obtained in 1951 by Lewis P. Jenkins, Bureau of Agricultural Economics, U. S. Department of Agriculture, and Hugh L. Cook, Department of Agricultural Economics, University of Wisconsin.

TABLE 3.—*Sales of milk and skim milk in Class I by handlers under Federal Order No. 41 (Chicago) to nonhandlers outside the surplus manufacturing area,*[1] *monthly, 1953–54*

Month	1953	1954	Month	1953	1954
	Pounds	*Pounds*		*Pounds*	*Pounds*
January	962,735	779,815	August	294,485	2,898,761
February	264,395	388,075	September	3,188,667	14,917,300
March	45,255	943,010	October	3,760,722	11,945,004
April	302,640	872,490	November	1,602,750	6,590,510
May	275,230	174,584	December	811,840	3,406,154
June	198,746	449,914			
July	185,428	1,096,781	Total	11,892,893	44,462,398

[1] The surplus manufacturing area as defined in, and for the purposes of Order 41 includes mainly Wisconsin, northern Illinois, northwestern Indiana, and southwestern Michigan.

TABLE 4.—*Sales of milk and skim milk in Class I by handlers under Federal Order No. 41 (Chicago) to nonhandlers outside the surplus manufacturing area,*[1] *by State, 1953–54*

State	1953	1954	State	1953	1954
South Atlantic region:	*Pounds*	*Pounds*	East south-central:	*Pounds*	*Pounds*
North Carolina	403,202	5,209,983	Alabama	138,180	826,640
			Kentucky	1,168,310	785,110
Total	[2] 462,902	[2] 5,582,777	Mississippi	536,320	1,032,372
			Tennessee	605,910	470,195
East north-central:					
Ohio		1,802,554	Total	2,448,720	3,114,317
Indiana	525,620	71,070			
Illinois	585,421	3,772,555	West south-central:		
Michigan	480,720		Arkansas	420,600	5,618,095
			Louisiana	1,685,080	3,318,510
Total	1,591,761	5,646,179	Oklahoma		843,155
			Texas	92,970	5,687,749
West north-central:					
Iowa		582,460	Total	2,198,650	15,467,509
Kansas	32,690	93,020			
Minnesota	1,437,380	4,744,157	Total	11,892,893	44,462,398
Missouri	3,720,790	7,439,830			
Nebraska		1,661,660			
South Dakota		130,489			
Total	5,190,860	14,651,616			

[1] The surplus manufacturing area as defined in, and for the purposes of, Order 41 includes mainly Wisconsin, northern Illinois, northwestern Indiana, and southwestern Michigan.
[2] Includes small amounts from District of Columbia and Virginia.

in which they were located. (*50*) Twenty-three percent of these distributors shipped milk 100 miles or more. In 10 States of the region, there are 1,705 places which had populations of 1,000 or more in 1950. Eighty-three percent of these places were being served with milk packaged in another town in 1952 and the average distance of the outside plants was more than 40 miles (table 5). The widening of distribution areas is a recent development, for 91 percent of the distributors who reported stated that they had begun outside sales since 1945.

Federal order data provide another indication of the extent to which milk is being marketed over long distances (table 6). In June 1954, about 37 million pounds, and in September 1954, about 55 million pounds of milk were sold in one market by sellers who were regulated by another order. The sales in June consisted of about 7½ million pounds of packaged or bottled milk, 5½ million pounds of bulk milk, and 24½ million pounds for which the originating market was not identified, and the form in which the milk was moved was not reported. In September, sales of packaged milk were about 8 million pounds, bulk milk increased to 17½ million pounds. The remainder, moved from unidentified origins in unidentified forms, was 29½ million pounds.

The distances were substantial—for two-thirds of the packaged milk the markets were more than 100 miles apart, and for one-fourth of the bulk milk in September the markets were more than 500 miles apart.

EVOLUTION IN MERCHANDISING

Standard milk in quart glass bottles delivered daily to homes once comprised the largest part of the milk dealer's business. In the 1930's some striking divergences from this pattern began to appear (*34*). Since the end of World War II the change in merchandising methods has been accelerated.

TABLE 5.—*Number and total population of places without and with outside milk and average airline distance over which it came, 10 North-Central States, May 1952*

Item	Unit	Population group				
		200–999	1,000–9,999	10,000–49,999	50,000 or more	All places
Total places	No.	3,385	1,501	161	43	5,090
Places with milk from—						
No outside source	No.	1,198	243	23	18	1,482
One outside source	No.	1,375	497	41	9	1,922
Two outside sources	No.	601	424	45	5	1,075
Three or more outside sources	No.	211	337	52	11	611
Total population:						
Places without outside milk	1,000	515	569	466	5,604	7,154
Places with outside milk	1,000	1,081	3,340	2,666	9,315	16,402
Average airline distances of milk coming from—						
One source	Mi.	39	40	49	53	40
Two sources	Mi.	38	45	46	47	41
Three or more sources	Mi.	41	45	48	52	44

North-Central Regional Dairy Marketing Research Committee, Dec. 16, 1954.

TABLE 6.—*Milk, cream and skim milk received in Federal order markets from other Federal order markets, by distance between selling and receiving markets, June and September 1954*

Distance—Selling market from receiving market (miles)	Milk, cream, and skim milk received by handlers and processed in the receiving market			
	June 1954		September 1954	
	Pounds	*Percent*	*Pounds*	*Percent*
0–99	4,061,784	74.3	5,254,748	29.9
100–199	347,923	6.4	756,970	4.3
200–499	722,460	13.2	6,976,941	39.7
500–999	332,057	6.1	3,160,370	18.0
1,000 and over	----------	----------	1,414,974	8.1
Total	5,464,224	100.0	17,564,003	100.0
	Milk, cream, and skim milk processed in the selling market and distributed in the receiving market			
0–99	2,265,458	31.0	2,762,833	34.8
100–199	4,908,113	67.0	4,978,149	62.6
200–499	147,168	2.0	180,843	2.3
500–999	----------	----------	22,089	.3
1,000 and over	----------	----------	----------	----------
Total	7,320,739	100.0	7,943,914	100.0
Unknown	24,667,166	----------	29,508,886	----------
Grand total	37,452,129	----------	55,016,803	----------

Once-a-day delivery to homes has given way completely to every-other-day and three-times-a-week delivery. With this exception the other changes in merchandising methods have only partly displaced those that once were dominant. Besides the change in frequency of delivery, there has been a continuation of the trend toward an increasing proportion of sales through stores; wider adoption of the paper container and of ½-gallon and 1-gallon glass containers; increased sales of homogenized milk and skim milk; the introduction of milks that are variously modified and fortified by partial skimming, or the addition of milk solids-not-fat or various vitamins. Varied methods of pricing fluid milk products in the different units of sale, discounts for quantity purchases, differentials for service, and vending and dispensing machines are more widely used.

Such innovations in pricing and marketing methods and practices tend to encounter restrictions either because the need to provide for them not foreseen when the law or regulation was enacted, because the particular innovation may not be in the public interest, or because various market interests opposed to the innovation may seek to curb it by the application of hampering or prohibitive laws or regulations. Introduction of the paper container, for example, was opposed by some public health officials, whose position received the enthusiastic support of those milk dealers adversely affected by the competition. Large-size containers, vending and dispensing machines, distribution of milk through stores, and bulk assembly of milk from farms all have encountered obstacles in the form of laws or regulations.

STATE AND MUNICIPAL SANITARY REGULATIONS

PUBLIC HEALTH BASIS

The public health basis for sanitary regulation of milk rests in its susceptibility to contamination, its excellence as a medium for the growth of bacteria and its widespread use as an article of diet, particularly for children. These factors have been recognized by the courts (*59*, p. 10). Not only is the sanitary quality of milk so important as to warrant its regulation, but the fact that low prices may force farmers to relax their efforts and care for milk has been given as a reason for enacting laws to control milk prices.

Tobey reports that, "The first law on milk in this country was a Massachusetts Act of 1856 prohibiting the adulteration of milk." (*59*) States and cities gradually adopted and perfected their laws and ordinances intended to ensure the sanitary quality of their milk supplies.

Development of the regulations for milk sanitation has been evolutionary. The larger cities were first to adopt comprehensive sanitary requirements. Rural areas and unincorporated places were among the last to have any supervision of their milk supplies. In only a few States are there provisions for coordinated statewide supervision of milk supplies. This aspect of the evolution of sanitary regulations ran parallel to the growth of milksheds. Originally city milksheds were purely local in character. Over the years they have expanded and encroached on one another. This happened first in the densely populated northeast, and it may explain the preoccupation with trade barriers in that region in the 1930's (see above, p. 7). Today, the expanded areas from which supplies are received, and to which bottled milk is distributed, are bringing about continued evolution in the sanitary regulations of milk.

It is recognized that there must be continued vigilance over milk supplies in order to prevent outbreaks of milkborne disease (*65*, p. 1729). The success of health authorities in keeping these outbreaks to a minimum does not remove the necessity for care. The list of diseases includes, among others, undulant fever, typhoid, and paratyphoid fever, bovine tuberculosis, diphtheria, septic sore throat, diarrhea and enteritis, Q fever, and food poisoning.

Pasteurization is a substantial step in making milk a safe food. Pasteurization destroys or deactivates all known disease organisms with the possible exception of the rickettsia, viruses, and Q fever. It does not, however, destroy the staphylococcus enterotoxin which causes food poisoning. Thus, pasteurization is a safeguard, not a substitute for other protective measures.

The public health significance of milk has been so great, and the control so effective, that milkborne disease outbreaks have been greatly reduced in comparison with those attributable to water or to other foods (table 7). Over the period 1938–50, disease outbreaks attributed to milk and milk products were about 10 percent fewer than outbreaks attributed to water, and less than one-eighth the number attributed to other foods. The number of cases attributed to milk was about one-eighth of those attributed either to water or other foods. Deaths resulting from milk-borne disease were about as many as those from water, and about one-fourth those from other foods.

TABLE 7.—*Summary of disease outbreaks from water, milk and milk products, other foods and undetermined vehicles* [1]

Year	Water			Milk and milk products			Other foods			Undetermined			Total		
	Out-breaks	Cases	Deaths	Out-breaks	Cases	Deaths	Out-breaks	Cases	Deaths	Out-breaks	Cases	Deaths	Out-breaks	Cases	Deaths
1938	48	[2] 31,693	17	42	1,685	27	70	2,247	25	8	882	3	168	[2] 36,507	72
1939	43	2,254	3	41	2,509	7	146	3,770	12	17	1,203	6	247	9,736	28
1940	43	[3] 44,184	9	43	1,678	10	218	5,588	30	18	1,088	1	322	[3] 52,538	50
1941	60	12,039	24	37	1,049	4	223	6,070	53	20	1,876	24	340	21,034	105
1942	53	13,271	9	45	2,142	2	245	11,420	101	37	1,878	10	380	28,711	122
1943	26	5,712	15	40	1,590	7	285	13,938	33	38	2,525	1	389	23,765	56
1944	32	2,686	1	41	1,449	20	298	14,558	45	22	1,683	1	393	20,376	67
1945	26	5,859	6	29	2,161	17	276	11,547	57	12	637	2	343	20,204	82
1946	32	4,512	2	19	795	0	299	12,526	17	6	312	1	356	18,145	20
1947	24	6,125	1	22	253	7	316	12,536	29	27	1,392	8	389	20,306	45
1948	21	619	4	17	613	2	327	9,962	17	10	466	5	375	11,660	28
1949	25	1,570	3	15	246	0	367	9,043	11	10	616	4	417	11,475	18
1950	15	1,299	0	10	62	0	347	10,174	5	7	564	0	379	12,099	5
1951	7	3,960	[4]	12	90	[4]	256	7,182	[4]	2	12	[4]	277	11,244	[4]
1952	14	530	[4]	6	833	[4]	143	6,828	[4]	63	2,566	[4]	226	10,757	[4]
1953	11	719	[4]	4	97	[4]	194	9,914	[4]	40	1,129	[4]	249	17,859	[4]
Total	480	137,032	94	423	17,252	103	4,010	147,303	435	337	18,829	66	5,250	310,416	698

[1] As reported by State and municipal health departments.
[2] Including a waterborne outbreak of gastroenteritis with 29,250 cases.
[3] Including a waterborne outbreak of gastroenteritis with 35,000 cases.
[4] Data not published.

Source: United States Federal Security Agency, Public Health Service.

METHODS OF SUPERVISION

Sanitary regulation of milk supplies extends almost continuously from the farm to the consumer, but there are natural divisions of the work. These include inspection of farms, inspection of plants, inspection and supervision of delivery and sale, and laboratory examination of milk samples.

Supervision of Farm

Farm inspection stresses primarily the cleanliness of the environment in which milk is produced and cared for, the provision of adequate facilities, and the practice of approved methods of milking and caring for the milk and dairy utensils. These measures are intended to prevent contamination of the milk and, in the case of cooling requirements, to inhibit the growth of any bacteria which may be present.

It is regulations pertaining to farm inspection which most frequently give rise to complaints of restrictions to the flow of milk. In the first place, the regulations are adopted and enforced by a multiplicity of local authorities. Secondly, the regulations must be specific and unambiguous so there will be no misunderstanding between the farmer and the enforcement official as to when there is compliance.

The larger the number of separate jurisdictions establishing sanitary regulations the greater is the number of possible differences. The likelihood that regulations will differ among jurisdictions is increased by the fact that many requirements whose public health significance cannot be questioned in principle are exceedingly difficult to substantiate objectively when reduced to specific terms.

The lack of objective bases for the specific terms of a regulation may be illustrated by a comparison. Adding water to milk is prohibited both because it is fraudulent and because the added water may be a source of contamination. The freezing point of milk affords a highly precise measure of whether water has been added. In 135 samples of milk, 113 were found to have freezing points between −0.530° C. and −0.554° C.; that is, within a range of 2 percent of the average freezing point. (*25*, p. 83.) Thus, there is little room for disagreement about the level of the freezing point at which a sample of milk shall be considered to have added water. The Association of Official Agricultural Chemists gives a formula based on a freezing point of −0.550° C.[2] Added water may be calculated from this formula and any result showing 3 percent or more of added water is considered to be adulterated without any tolerance. Any sample with a freezing point of −0.5335° C. would be in this class.

At the other extreme, the exact significance of any specific bacterial content of milk is most indefinite. Dahlberg, et al., concluded that "a total bacterial plate count of not more than 200,000 per ml. for raw milk is recommended empirically as a standard at the receiving plant. There is no exact scientific or public health basis for deciding on this definite bacterial standard other than the fact that experience

[2] The report by Dahlberg, Adams, and Held (*25*) presents evidence that the average freezing point may be only −0.540° C.

has shown that this common standard can be readily attained with reasonable facilities and good methods of production" (*25*, p. 123).

The chaos resulting from this uncertainty over the exact public health significance of any given bacteria count is illustrated by Dahlberg's findings in the sanitary milk legislation of 84 large cities. Eight of these cities had bacterial standards of 25,000 bacteria per cubic centimeter or less for milk for pasteurization, while 6 had standards of over 300,000 per ml. The standards of 9 cities were within a range of from 30,000 to 80,000 and of 52 were within a range of 100,000 to 200,000. The ordinances of 9 cities did not specify a standard (*24*, p. 16).

In the typical milk ordinance there are large numbers of items, like bacteria counts, to which a wide range of interpretations may be and often are given in different jurisdictions. Requirements as to the health of cows, provisions for lighting and ventilating the milking barns, specifications for the materials, dimensions, and workmanship in the construction of barn and milkhouse, and location of barn, milkhouse, cowyard, and manure storage are examples. Considering the number of jurisdictions it is small wonder that milk ordinances show a diversity that encumbers the movement and merchandising of the product.

The methods by which supervision of sanitary conditions on the farms are carried out are subject to some variation. Personal inspection is fundamental. Sixty-five of the 84 large cities specified the minimum frequency with which farm inspections must be made. These range from 1 to 6 visits per year. Frequencies of 1 or 2 inspections per year were most common.

In addition to periodic farm inspections measurements of the quality of the milk itself are required by ordinances of most jurisdictions. Fifty-one of the 84 large cities required the sampling of milk at specified intervals. The number of samples to be taken yearly ranged from 4 to 24, with 8 samples per year the most common number.

It is generally recognized that neither farm inspection alone nor laboratory testing alone suffices for the control of sanitary quality of milk supplies. Dahlberg concluded: "It was necessary to inspect to determine that proper facilities were available, to test milk to learn if the product was in compliance with standards, and for sanitarians or fieldmen to revisit producers whose milk failed to meet standards to aid them in improving the quality of the milk." (*25*, p. 108).

The relative importance to be attached to farm inspection as compared with laboratory control is controversial. This is a further explanation for some of the diversity among health ordinances. Those ordinances which stress environmental conditions require frequent farm inspections and specify in great detail the conditions to be provided on the farm. Ordinances emphasizing laboratory control or platform inspection, on the other hand, emphasize the condition of the milk as received at the market. Under such programs most farm inspections are reserved for those producers whose milk is found to be unsatisfactory. The farmer is permitted considerable freedom with respect to buildings, equipment and practices as long as his milk passes the quality tests.

The foregoing observations on inspection and laboratory control apply to the routine supervision of farms. When milk must be brought from sources beyond the limits in which the local Health Department is willing and able to provide routine supervision, an additional complication arises. This involves the basis on which the local authority will accept supervision exercised by another authority. Some cities will not accept milk under such circumstances. Among those which will, there is an almost infinite variety of methods of assuring that the milk is of reasonable quality, ranging from the simplest of tests on milk received—as for flavor, acidity, or temperature—to personal inspections of farms and plants approaching in intensity the supervision given in the areas under routine control.

Supervision of Plants

The potential consequences of accidental contamination of milk in the milk plant or of faulty pasteurization are vastly greater than the risks at farm. Sanitary requirements for milk plants, therefore, tend to be set forth in much greater detail and plants are supervised much more rigorously than are farms. The U. S. Public Health Service recommended Milk Ordinance and Code, for example, devotes 26 pages to the code for Grade A raw milk for pasteurization and 57 pages to the code for Grade A pasteurized milk (*75*).

As with farm inspection, the principal methods followed in supervising milk plants consist of personal inspections and laboratory testing. In 84 large cities, the ordinances required mostly annual or semiannual inspections, while one case required weekly inspections. The minimum number of pasteurized milk samples to be tested ranged from 4 per year to 60 per year, although 8 per year was most common (*24*, pp. 34–41)

Supervision of Distribution

The supervision of milk sanitation is carried through to the consumer to prevent unnecessary exposure of the milk or milk products to contamination from the time they are placed in their final container at the dairy or milk plant until the time they are delivered. The Milk Ordinance and Code recommended by the U. S. Public Health Service, for example, prohibits the producer or distributor from transferring milk from one container to another in any place except a bottling or milk room especially used for that purpose, regulates the serving of milk by hotels, soda fountains, restaurants, and groceries, requires that milk be kept at a temperature of 50° F. or less, and provides for the care and cleaning of returnable containers (*75*). Standards are prescribed for delivery vehicles, the health and cleanliness of personnal, etc.

LICENSES AND FEES

The financing of the sanitary supervision of milk supplies is a feature of some significance in a study of restrictive regulations. In many instances, the cost of the program is financed out of general reve-

nues of the city, county, or State. Most jurisdictions, however, issue licenses for fees ranging from nominal amounts up to amounts which cover much of the cost of the service. In addition, some cities levy fees of 1, 2, or more cents per hundredweight of milk on the producer, the milk plant, or both. Charges may be made for inspection services and, occasionally, this is based on the location of the farm or plant beyond the specified limit.

JURISDICTIONAL AUTHORITY

The sanitary regulation of milk is carried out under the police powers of the State. In the United States, the police power was reserved to the States under the Constitution. Within the States, the authority is usually delegated to municipalities. State laws vary from those that give detailed treatment of sanitary requirements to others where the regulatory specifications are in general and meager terms or nonexistent. The States also differ in the extent to which cities are free to enforce requirements that are different or more restrictive than the State requirements. In a number of instances, particularly in the Northeast, the State rather than the city exercises responsibility for supervising the supply of milk from sources outside the State boundary.

The Federal Government has authority under the Constitution to control milk which is imported from a foreign nation or which is shipped in or burdens, obstructs, or affects interstate commerce. The Import Milk Act of 1927 is administered by the Food and Drug Administration of the Department of Health, Education, and Welfare. The U. S. Public Health Service exercises regulatory authority over the milk served on interstate common carriers. These are the only Federal regulations now affecting sanitary control over milk.

The Public Health Service has a service function which derives its strength from the need which it fills, and not from enforcement. The Public Health Service established an Office of Milk Investigations in 1923. A study of the State and municipal milk regulations then in force revealed great variation. Then, as now, some requirements were of doubtful public health significance, others were impractical or unnecessary, and still others differed markedly with respect to the same item of sanitation. Some States were interested in initiating milk sanitation programs to help them; the Public Health Service developed and published in 1924 a recommended milk ordinance. An accompanying code published in 1927 set forth the public health reason for each requirement and provided detailed descriptions of satisfactory compliance. The ordinance and code have been revised to keep abreast of modern techniques and developments in dairy science, public health, veterinary medicine, and related fields. The latest revision was published in 1953 (*75*). The recommended ordinance and code are now in effect in some 2,000 municipalities and counties.

In addition to developing the milk ordinance and code, the Public Health Service developed a system for rating city milk supplies. These ratings are the basis for a milk sanitation honor roll which lists those

cities having a rating of 90 percent or more for compliance with the various items of sanitation contained in the milk ordinance and code recommended by the Public Health Service. More recently, the Public Health Service developed a cooperative program for the certification of interstate milk shippers. A National Conference on Interstate Milk Shipments, composed mainly of health and agricultural department officials of the States, has had several meetings at which were adopted policies under which the program is carried out. Under this program, plants under the supervision of approved local health units have their supplying farms and their own facilities rated periodically by their State Department of Health or Agriculture according to a rating system established and supervised by the Public Health Service. At the written request of the rated plants, their ratings are published quarterly for the information of milk dealers and local health officers who may be looking for acceptable sources of milk.

MODES OF RESTRICTION

There are about 4 major respects in which sanitary regulations may foster undue restriction. (1) They may prohibit certain activities; for example, forbidding the distribution of milk pasteurized in a plant located beyond the city limits. (2) Regulations of different jurisdictions may differ on details, the difference not being of material public health significance but encumbering or preventing the flow of milk between the markets. (3) Regulations may be applied or enforced in a discriminatory manner. (4) Finally, the duplication of inspections, especially where there are substantial charges for inspection, or other burdensome requirements, may substantially limit the number of outlets to which milk can be moved.

Each of these forms of restrictions may have a public health reason at least in part. Limitations on supply areas serve to prevent a health department's resources from being dissipated by having an excessive number of farm to supervise. Where there is wide range for judgment as to the specific details of a regulation, lack of agreement on these details among different jurisdictions is understandable, particularly in the absence of any compelling reason for independent jurisdictions to consult together in drawing up their programs. Discriminatory application may be held to preserve the maximum of inherent advantages of local supplies in terms of freshness of the milk, responsiveness of producer to the recommendations of officials, etc. Duplication of inspections is defended on grounds of lack of confidence in the work of other authorities.

RELATION TO ECONOMIC PROBLEMS

Whatever the basis for the restriction and regardless of the extent to which there may be an element of public health significance, it is an important fact that sanitary regulations have economic effects. It is rare that those who want to use sanitary regulations to achieve economic ends acknowledge their purpose publicly. One producer is reported as saying: "The attitude of the Board of Health is the key

to success in producing a situation in which the surplus milk problem is brought to the vanishing point. This desirable result is produced by refusal of the Board of Health to approve dairies outside a certain radius."

The economic significance of sanitary regulations was described by Mr. Charles W. Holman, former Secretary of the National Milk Producers' Federation, in testimony before a subcommittee of the Committee on Agriculture and Forestry of the U. S. Senate in 1950. Along with other reasons for opposing a compulsory Federal milk sanitation code Mr. Holman said, "Third, we considered carefully the competitive aspect of the milk trade, and this is of superior importance in this matter. As you know, there are a number of firms in the dairy industry which operate throughout the Nation. In addition, there are many powerful firms which operate on a regional basis. But most cooperative dairy associations operate in local or regional markets. * * *

"Frequently, our members have found that milk distributors in a local market were refusing to buy the local supply at the prices agreed upon between the cooperative and the milk dealers, while at the same time these dealers were acquiring milk from other markets—milk which they had purchased at lower surplus prices, transported to the city in question, and then sold in bottles as fluid milk. One factor that holds this practice to minor levels is that most local regulations require that the sources of the milk supply for the area be inspected by the local authorities." (*65*, p. 1921.)

EXAMPLES OF RESTRICTIVE SANITARY REGULATIONS

During the course of this study there was compiled a lengthy list of examples of restrictive features of sanitary regulation. The list illustrates the four modes of restriction described above: Prohibitions, differences, discriminatory application, and duplication of inspection. The examples cited in this section are to be considered only as such. Resources for the study did not permit a complete coverage of all jurisdictions exercising control over milk sanitation in the United States. Nor even for those jurisdictions about which information was obtained was there time to obtain information from all the people concerned. For these reasons, the following discussion sometimes does not identify the jurisdiction referred to; and when jurisdictions are identified, it does not imply that this was the only jurisdiction having the kind of law, regulation, or practice described.

Prohibition of Milk Entry

By far the most common policy standing in the way of free movement of milk was the refusal of given jurisdictions to accept milk produced or handled under the supervision of other jurisdictions having substantially equivalent sanitary standards. In order to get comprehensive information on this and some other aspects of sanitary regulation, a mail questionnaire was sent to health officers of all urban places of 25,000 or more population having full-time health units (appendix A). Replies were received from 318 cities, out of

334 questionnaires sent out, about a 95 percent return. Respondents in 6 jurisdictions reported that the questionnaire was not applicable to their situations.

Out of 312 cities, 100 refused to accept milk from farms supervised by their own State department of health or agriculture (in many States the State agency does not supervise sanitation on dairy farms); 84 refused to accept milk from farms supervised by some other State (although a given city might accept supervision of one State and reject that of another); 74 refused to accept milk from farms approved by cities not having the standard ordinance; while only 49 refused to accept milk under supervision by cities having the standard ordinance (table 8).

It should be kept in mind that there were many cities which unconditionally accepted milk, the production and handling of which was supervised by specified agencies. There were 127 cities which accepted supervision of farms by their own State department of health or agriculture without question; 75 which accepted supervision of some other State or States; 69 which accepted supervision by cities having the standard ordinance; and 42 which accepted supervision by cities having other types of ordinance.

TABLE 8.—*Policies of local jurisdictions regarding acceptance of milk from farms under routine supervision of other agencies, United States and regions*

Local jurisdiction accepts milk from farms under the routine supervision of jurisdictions of the type specified on the following basis:	United States: Jurisdictions accepting milk from farms under routine supervision of—			
	Department of Health or Agriculture in own State	Agencies of other State governments	Cities with U. S. PHS model ordinances	Cities with other ordinances
	Number	*Number*	*Number*	*Number*
Without further inspection	127	75	69	42
U. S. PHS rating by State of origin			117	86
Survey by local jurisdiction	50	81	66	68
Full inspection by inspectors of local jurisdiction	100	84	49	74
Not reported	35	106	78	87
Total	312	346	379	357
	Northeast			
Without further inspection	42	24	20	15
U. S. PHS rating by State of origin			13	10
Survey by local jurisdiction	14	16	14	16
Full inspection by inspectors of local jurisdiction	29	28	19	26
Not reported	8	33	42	35
Total	93	101	108	102
	North-central			
Without further inspection	15	12	12	6
U. S. PHS rating by State of origin			36	24
Survey by local jurisdiction	21	25	26	24
Full inspection by inspectors of local jurisdiction	27	23	9	21
Not reported	13	25	12	14
Total	76	85	95	89

TABLE 8.—*Policies of local jurisdictions regarding acceptance of milk from farms under routine supervision of other agencies, United States and regions*—Continued

Local jurisdiction accepts milk from farms under the routine supervision of jurisdictions of the type specified on the following basis:	United States: Jurisdictions accepting milk from farms under routine supervision of—			
	Department of Health or Agriculture in own State	Agencies of other State governments	Cities with U. S. PHS model ordinances	Cities with other ordinances
	Number	*Number*	*Number*	*Number*
	South			
Without further inspection	41	27	24	11
U. S. PHS rating by State of origin			59	43
Survey by local jurisdiction	13	33	22	23
Full inspection by inspectors of local jurisdiction	40	30	17	22
Not reported	10	29	9	22
Total	104	119	131	120
	West			
Without further inspection	29	12	13	10
U. S. PHS rating by State of origin			9	9
Survey by local jurisdiction	2	7	4	5
Full inspection by inspectors of local jurisdiction	4	3	4	5
Not reported	4	19	15	16
Total	39	41	45	45

The most common condition for accepting milk produced under the supervision of another agency was that the source be rated by the methods prescribed by the United States Public Health Service. Another common practice was to approve a source only after visiting the supply area and inspecting some of the farms.

There were regional differences in the extent to which full inspection by the receiving jurisdiction was required as a condition for accepting milk. Cities in the West and Northeast most commonly accepted milk from farms supervised by an agency of their own State. In the North-Central States and the South, on the other hand, State supervision was less widely accepted, and local jurisdictions more commonly insisted on making surveys, or full inspection as a condition to accepting milk. In the Northeast, most States must get milk from farms outside the State. It is customary in this region for the State rather than the city to exercise sanitary control over the supplies from out of State. In the West, the State Law of California requires any city or county in that State to accept milk produced under the supervision of districts having inspection services approved by the State Department of Agriculture.

Plants, as well as farms, are involved in the movement of milk between distant points. The critical importance of sanitation at this stage of the marketing process might be expected to result in more rigid policies for acceptance or approval of plants than of farms. However, the replies from the survey of health officers indicated that policies were not greatly different (table 9).

TABLE 9.—*Policies of local jurisdictions regarding plant inspection required for acceptance of milk from nonlocal sources, United States and regions*

Local jurisdiction accepts milk from farms under the routine supervision of jurisdictions of the type specified on the following basis	United States: Jurisdictions accepting milk from plants under routine supervision of—			
	Department of Health or Agriculture in own State	Agencies of other State governments	Cities with U. S. PHS model ordinances	Cities with other ordinances
	Number	*Number*	*Number*	*Number*
Without further inspection	122	67	77	36
U. S. PHS rating by State of origin			112	92
Survey by local jurisdiction	66	66	78	58
Full inspection by inspectors of local jurisdiction	78	82	43	71
Not reported	46	122	78	105
Total	312	337	358	362
	Northeast			
Without further inspection	33	22	17	8
U. S. PHS rating by State of origin			15	12
Survey by local jurisdiction	19	14	13	18
Full inspection by inspectors of local jurisdiction	31	33	22	27
Not reported	10	29	43	39
Total	93	98	100	104
	North-central			
Without further inspection	19	11	11	6
U. S. PHS rating by State of origin			38	25
Survey by local jurisdiction	22	26	31	22
Full inspection by inspectors of local jurisdiction	20	17	7	18
Not reported	15	31	11	21
Total	76	85	98	92
	South			
Without further inspection	40	26	28	8
U. S. PHS rating by State of origin			62	47
Survey by local jurisdiction	22	20	30	15
Full inspection by inspectors of local jurisdiction	24	28	12	23
Not reported	18	39	12	28
Total	104	113	144	121
	West			
Without further inspection	30	8	21	14
U. S. PHS rating by State of origin			7	8
Survey by local jurisdiction	3	6	4	3
Full inspection by inspectors of local jurisdiction	3	4	2	3
Not reported	3	23	12	17
Total	39	41	46	45

350089—55——3

Some cities established limits beyond which they would not go to inspect farms or required that pasteurization plants be within specified distances of the city. Although there may be doubts as to their legality, such regulations are effective because to challenge them involves costs of litigation and problems of relationships with competitors, regulatory agencies and the public.

Of the 316 health officers responding to the mail questionnaire, 23 reported that their ordinance or regulation set some kind of limitation to the production area (table 10). There were 31 which required that pasteurization plants be located within specified distances from the city (table 11).

One of the newer developments in milk distribution, reported above on page 18, is the expansion of the areas to which milk is distributed from the bottling plant. This development is effectively blocked by requirements that the milk be pasteurized within the limits of the city in which it is delivered or some similar limit. Several instances of this type of restriction were reported in the personal interviews—it was important in smaller cities than those covered in the survey of city health officers (25,000 population or larger). These smaller cities in total constituted a large market for many distributors.

There was evidence that many places observed limits on their supply areas as an unwritten matter of policy. In the survey of health officers, many indicated that their acceptance of outside milk supplies was dependent on whether adequate supplies were already available, on practical difficulties in inspection of additional farms, or on other kinds of limitations in the ordinances or laws from which they drew their authority (table 12).

TABLE 10.—*Local jurisdictions with ordinances or regulations limiting production area for regular milk*

Kind of limitation	Local jurisdictions				
	North-east	North-central	South	West	Total
	Number	*Number*	*Number*	*Number*	*Number*
Distance	1	3	4	0	8
Elapsed time from farm to pasteurizing plant	2	0	0	0	2
Specified boundaries	2	1	2	2	7
Not specified or other	1	0	5	0	6
Total	6	4	11	2	23
No limitation	87	72	88	37	284
Not reported	0	0	5	0	5
Total	93	76	104	39	312

In making the survey of health officers, it was thought that, under the production and price conditions of 1954, many of the jurisdictions concerned would have received applications for permits from farmers beyond the bounds of the milksheds as they were at the close of 1953. Out of 310 jurisdictions there were 54 in which applications had been received from farmers so located. Of these 54 jurisdictions there were 47 which approved some or all of the applications, and 7 which ap-

TABLE 11.—*Local jurisdictions with ordinances or regulations limiting location of pasteurization plants*

Kind of limitation	Local jurisdictions				
	Northeast	North-central	South	West	Total
	Number	*Number*	*Number*	*Number*	*Number*
Distance	3	6	1	2	12
Elapsed time from farm to pasteurizing plant	1	0	0	0	1
Specified boundaries	6	2	5	1	14
Not specified or other	1	0	3	0	4
Total	11	8	9	3	31
No limitation	82	67	95	36	280
Not reported	0	1	0	0	1
Total	93	76	104	39	312

TABLE 12.—*Jurisdictions in which specified factors affect policies concerning acceptance of outside milk supplies*

Factor	North-east	North-central	South	West	Total
	Number	*Number*	*Number*	*Number*	*Number*
Shortage of approved milk—					
Affects policies	30	18	37	4	89
Does not affect policies	48	54	60	35	197
Not reported	15	4	7	0	26
Total	93	76	104	39	312
Practical difficulties in inspection of farm—					
Affects policies	29	16	26	4	75
Does not affect policies	43	52	69	35	199
Not reported	21	8	9	0	38
Total	93	76	104	39	312
Legal limitations or other factors—					
Affects policies	27	18	40	15	100
Does not affect policies	40	46	46	22	154
Not reported	26	12	18	2	58
Total	93	76	104	39	312

proved none. A total of 5,800 applications were reported, of which 5,053 were approved. The results do not indicate any widespread discrimination again producers on the basis of their distance from market. Possibly the fact that there were no applications at some cities resulted from farmers' belief that it would be futile to apply.

Pasteurization plants also applied from increasing distances. There were 42 jurisdictions which reported receiving applications during 1954 from plants more distant than those approved at the end of 1953 (table 13). Only 24 jurisdictions approved such applications. A total of 74 applications were reported, of which 40 were approved.

About half the plants applying were approved. This ratio differed little from region to region, but by population class, cities in the 50,000 to 100,000 group appeared to be distinctly more restrictive than other groups. Cities in this group approved only about one-third of the plants applying, and the average added distance was only 34 miles, as compared with 53 to 73 miles for the other size groups.

TABLE 13.—*Applications for approval received by local jurisdictions from pasteurization plants more distant than those under inspection or control at the end of 1953 and approval granted, 1954, by region and population of jurisdiction*

Region	Applications		Approvals		Average increase in distance of most distant plant under inspection
	Jurisdictions	Plants	Jurisdictions	Plants	
					Miles
Northeast	5	8	3	5	52
North-central	13	23	6	10	45
South	22	41	13	23	63
West	2	2	2	2	17
Total	42	74	24	40	53
Population of jurisdiction (thousands):					
250 and over	2	3	1	1	70
100–250	6	11	4	8	73
50–100	11	17	4	5	34
25–50	23	43	15	26	53
Total	42	74	24	40	53

It was not only municipalities which limited sources from which they would accept milk. A number of States followed similar standards with respect to the approval of milk from out-of-State sources, most of the Southeastern and Southern States, for example. In these instances, approval of out-of-State sources tended to be withheld unless and until no inspected milk was available within the State.

In several instances, out-of-State sources were not given the opportunity to qualify as regular sources of supply even though the shortage of supplies from State sources was substantial and of long duration.

Rhode Island requires that milk be delivered to a plant within the State in the original container in which it was placed by the producer.[3] "Emergency" permits are granted for milk which is needed in the State but which cannot be handled at reasonable cost under this requirement. Thus, about 30 percent of the State's milk supply is received by tank truck from plants located principally in Vermont and New York. The permits for this milk must be renewed monthly. The possibility that permits will not be renewed deters milk dealers from dropping local producers in order to buy out-of-State milk, the price of which is not subject to the Rhode Island price regulations.

Connecticut law establishes standards by which the State Commissioner of Farms and Markets is to be guided in approving additional sources. These require him to approve additional sources when receipts of approved milk have fallen below 106 or 115 percent of sales of milk in fluid form (the percent depending on the month) (*18*, Sec. 3218). He is not required to approve or inspect additional farms when the percentages exceed 110 or 125 percent, respectively (*18*, Sec.

[3] Milk cans were the only approved containers until recently. Assembly by tank truck from farm bulk trucks was not permitted. This requirement was contested by one company and a restraining order was issued on June 12, 1953 by the Federal District Court for Rhode Island. This order prevented the State from acting against the Company, which continued its business in Rhode Island. On April 5, 1955, the State amended the regulation, and now approves assembly of milk from farms by tank truck.

3224). The law explicitly puts into the hands of the commissioner the power to decide which farms shall be approved, and prescribes the factors which he shall take into account: "* * * the quality of milk available from different sources; the relative cost and efficiency with which inspection personnel and facilities may be employed in different localities; the relative accessibility of different sources of supply to Connecticut markets, the relative ease of transportation, and the length of time which would elapse before arrival in Connecticut markets; the quantity of milk available for shipment to Connecticut markets from different localities; and the reliability of various sources of supply from the standpoint both of quality and seasonal uniformity in the quantity available for shipment" (*18*, Sec. 3221). These criteria include the important ones, other than price, that would be considered by the management of milk companies in choosing sources of supply, were it in their hands to decide.

The Connecticut law has a performance standard requiring the cancellation of approval of any farm or plant which fails to ship milk to a Connecticut market for 7 consecutive days, October through December, or 45 consecutive days during the remainder of the year.

Differences in Details

The prevalence of differences in the details of sanitary regulations has been extensively studied by Dahlberg and Adams (*24*) and Hillman, et al. (*35*). Dahlberg and Adams compared the sanitary regulations of the 48 States, and of 84 cities which had populations of 100,000 or over. Hillman et al., give even greater detail on the regulations of 11 Western States and 12 cities. Differences are important mainly because they are commonly a basis for the refusal of one jurisdiction to accept the inspection of another.

There were no examples reported in which compliance with requirements of one city made it impossible to comply with those of another city. There are, however, many examples of discriminations based on differences the public health significance of which was questionable.

One city was reported to discriminate against another because of the difference in the numbers of bacteria permitted in the raw milk—the issue was not on the numbers actually present in the milk, but on the differences in the standards. In another case, a city refused to accept milk produced under the supervision of another because one ordinance required 4 farm inspections per year while the other required only 3. California refused to accept milk from farms approved by the health authorities of Arizona because the regulations of the latter specified that the milkhouse need only have one room, while the former required the milkhouse to have two rooms.

A number of differences in requirements tend to limit supplies, but are of more significance from the standpoint of interfering with the adoption and utilization of new distribution methods and improved technology. Currently, a number of cities and States prohibit the sale of milk in gallon jugs. In one city, the Health Officer has consistently refused to accept new developments until long after they have become well established elsewhere. Homogenization of milk is still permitted in this city only under temporary permits.

The control of bovine brucellosis is a comparatively recent development in milk sanitation. Many jurisdictions now require their milk supplies to come from herds that are brucellosis-free or that are participating in one of the control programs recommended by the U. S. Department of Agriculture. Great efforts are being made toward control of the disease and it should eventually disappear as a factor interfering with the free movement of milk.

Regulations regarding bovine tuberculosis are in some instances obsolete. Twenty-five to 30 years ago the control of bovine tuberculosis was at the stage that brucellosis is in today, where the level of infection was excessive. The national program for eradication of the disease was barely under way, and cities were justified in taking stringent precautions to see that their milk came from tuberculosis-free herds. The more progressive communities required annual tuberculin testing of all herds. The entire United States has long since become a modified accredited area, with the percentage of cattle reacting to the tuberculin test reduced to less than 0.2 percent. Modified accredited status may be maintained for 6 years without further retest. Upon retesting ten or more percent of the cattle in an area and finding a degree of infection less than 0.2 percent, an area may be reaccredited for 6 more years. While regulations of the Animal Disease Eradication Branch, United States Department of Agriculture, provide that more frequent tests may be made when State and Federal cooperating officials consider such additional testing necessary, there remains little reason to require tuberculin testing of all cattle annually. Such requirements constitute an undue burden on the movement of milk, the more so as a great majority of jurisdictions accept the standards for accreditation of the U. S. Department of Agriculture.

Discriminatory Application

One of the forms of restriction most difficult to evaluate as to its effect on milk marketing is the discriminatory application of sanitary regulations. Plants located at a distance from market generally reported that they were inspected more rigidly when local supplies of milk were adequate. Very few specific instances of arbitrary, capricious or flagrant interpretations were cited—rather, there appeared to be a general tightening of procedures. Sources closer to market may have felt the same tightening, so it would be difficult to substantiate charges of discrimination.

Some indication of the extent to which health officers may observe a dual standard was obtained in response to the question, "Do the policies of your jurisdiction concerning the acceptance of outside milk supplies depend on whether or not there is a shortage of approved milk?" Eighty-seven replies said yes, while 198 said no, out of 310 respondents.

Duplication

Among suppliers who were unable to find ready outlets for all of their supplies in one or a few cities there were some complaints of being burdened by duplication of inspections. Of shippers interviewed for this study, one was regularly inspected by 8 different jurisdictions, another by 10, and the third by 11 State agencies and by

some cities within those States. The expense of inspection was a factor of some importance, though not all jurisdictions made a charge against the supplier. In some instances, several suppliers located in the same general area could share the expense of inspection and, thus, keep it within reasonable limits. It was pointed out, however, by one plant that owing to the cost of inspection it could not afford to qualify to supply milk to any given city without reasonable assurance that a substantial volume of sales could be made. Since such shipments usually were for only a few months out of the year and highly variable from year to year depending on the weather and other production conditions, it was hard for managers to decide for which markets to seek and maintain approval.

The number and regional location of jurisdictions making a charge for farm and plant inspection and the bases for the charges are shown in tables 14 and 15.

The cost of inspection of farms per hundred pounds of milk was estimated from information furnished by 51 jurisdictions. The estimated cost applies to a farm producing 10,000 pounds of milk per month, approximately 330 pounds per day. The average was $0.0100 per month for farms close to market. To illustrate the effect of distance, calculations were made for farms 100 miles and 1,000 miles distant. Travel, subsistence, and salaries were items sometimes included where inspection was charged for on an actual expense basis. The rates used in such cases were: travel, 7 cents per mile; subsistence, $9 per day; salary, $4,000 per annum; and number of farms inspected per day, 6. Average costs of inspection, accordingly were $0.0104 per hundred pounds of milk for farms 100 miles distant and $0.0111 for farms 1,000 miles distant. Rates ranged from less than ½ cent to 6 cents per hundred pounds.

Charges for the inspection of milk plants could be estimated for 70 cities. The respective rates per hundred pounds of milk were $0.0150 for nearby plants, $0.0155 for plants 100 miles away, and $0.0166 for plants 1,000 miles away. The hypothetical plant on which these estimates were based would receive approximately 30,000 pounds of milk per day. Rates ranged from less than ½ cent to 5 cents per hundred pounds (table 16).

TABLE 14.—*Charges for farm inspection: Basis of charge by local jurisdictions*

Basis of charge	Local jurisdictions				
	North-east	North-central	South	West	Total
Volume of milk	0	9	7	2	18
Flat fee per farm	4	12	8	2	26
Distance	1	4	3	0	8
Cost of inspection	1	0	2	0	3
Included in plant fee	0	3	2	2	7
Not specified	1	2	2	3	8
Total	7	30	24	9	70
No charge	86	46	79	30	241
Not reported	0	0	1	0	1
Total	93	76	104	39	312

TABLE 15.—*Number of jurisdictions charging for inspection of pasteurizing plants and receiving stations and basis of charge*

Basis of charge	Jurisdictions				
	North-east	North-central	South	West	Total
PASTEURIZING PLANTS					
Annual license	4	7	4	1	16
Cost of inspection	3	3	2	1	9
Volume	1	20	10	9	40
Distance from city	1	7	4	0	12
Not indicated	4	5	5	6	20
Total	13	42	25	17	97
No charge	75	32	77	22	206
Not reported	4	2	2	0	9
Grand total	92	76	104	39	312
RECEIVING STATIONS					
Annual license	1	2	0	0	3
Cost of inspection	1	1	2	0	4
Volume	0	8	6	1	15
Distance from city	0	4	0	0	4
Not indicated	6	5	1	3	15
Total	8	20	9	4	41
No charge	77	33	75	22	207
Not reported	7	23	20	13	64
Grand total	92	76	104	39	312

Sanitary Regulations Affecting Merchandising

Most of the sanitary regulations complained of as being restrictive affected mainly the movement of milk, but some significantly affected the costs of marketing or the effective promotion of milk consumption.

To cite a simple but obvious example, the common requirement that the cap shall protect the pouring lip necessitates a cap that is more expensive than one which serves only to retain the milk within the bottle. In this instance, no complaint has been made against the requirement—the need for protection against possible contamination overrides the small cost consideration involved.

Some sanitary regulations require that the cap or container be plainly marked with the date of filling or the latest date on which the milk so marked can legally be sold. Such a requirement is intended to avoid the hazard that milk might deteriorate and become dangerous to use before, or too soon following, its sale. In addition to evidence that the hazard is inconsequential, such regulations are challenged on the ground that they are costly. In stores, milk with the most recent date will be chosen first by the customer—any milk not sold before the next delivery is likely to be left until its date expires and it has to be returned to the dairy. Returns become excessive and the loss is not inconsequential. The dating requirement also makes impracticable the 5-day week in the operation of milk plants.

Requirements that milk be pasteurized within a short distance of the market tended to keep the processing in small plants, where operating costs were higher than in larger plants serving wide areas. In such instances, also, the large-scale plants tended to emphasize paper con-

tainers and sales through store outlets. The restriction might be desired by local milk dealers as much for this reason as for protection from competition that would be more efficient or lower priced for other reasons.

TABLE 16.—*Estimated charges per hundred pounds of milk for inspection of farms and milk plants*

[Number of cities]

Charge per hundred pounds	Location of farms			Location of plants		
	Nearby	100 miles	1,000 miles	Nearby	100 miles	1,000 miles
Free	1			2		
$0.0050 or less	22	23	18	30	30	28
$0.0051–0.0100	14	10	14	15	15	14
$0.0101–0.0200	9	12	12	13	14	16
$0.0201–0.0300	3	1	2	6	6	5
$0.0301–0.0400	1	3	4	4	4	5
$0.0401–0.0500	0	0	0	0	1	2
$0.0501–0.0600	1	2	1	0	0	0
Total	51	51	51	70	70	70

[1] There were 6 cities which charged for inspection of farms but which did not report the amount of, or basis for the charge, and 241 cities which reported that no charges were made. There were 6 cities which charged for inspection of plants, but which did not report the amount of, or basis for the charge, and 230 cities which reported that no charges were made.

RECEIVERS' EVALUATION OF SANITARY QUALITY OF EMERGENCY SUPPLIES

Milk dealers who had received milk from sources outside their local milksheds during the period 1946 to 1954 were asked about their experience with this milk from the standpoint of quality. They were asked specifically how frequently it had been necessary to reject shipments of milk for failure to meet standards of bacteria content, flavor and odor, temperature, etc. In no instances had more than one or two shipments been rejected for such reasons. The quality of most shipments was quite satisfactory.

There was an important part of the emergency supply which was below the quality of local supplies, yet not poor enough to warrant rejection. In this connection it must be considered that whenever emergency shipments were needed the market was a sellers market. Supplies everywhere tended to be short, and shippers had a strong inducement to accept from producers milk which they would ordinarily reject, and to ship this milk along to the distant plants.

The receiver was under pressure to use whatever milk was received whether or not it was wholly satisfactory from the standpoint of quality. In the first place he would not order milk until his need for it was urgent. Secondly, in periods of general shortage there might be few plants able to make an additional tank truck shipment. Thirdly, when a tank of milk was found to be of poor quality upon arrival at the receiver's plant, the receiver's alternatives often were either to use it or to leave some of his customers' orders unfilled or only partially filled. Thus the situation would be conducive for both shippers and receivers to tolerate lower standards than they would normally require.

TRENDS IN SANITARY REGULATIONS AND THEIR APPLICATION

Besides knowing something about existing restrictive sanitary regulations, it is of interest to consider whether they appear to be increasing or decreasing in importance. Several sources of information throw light on this aspect of the situation: A perusal of trade publications; a study of court decisions; historical information supplied by persons interviewed for the study; reports of the National Conference on Interstate Milk Shipments; and the growing attention to the education and professional development of milk and food sanitarians.

News Value

The files of the Dairy Record, a weekly trade publication were reviewed for items about State and local regulatory restrictions. There were 230 items during the period 1946–1954. Of these, 124 concerned inspection or approval of milk producers and milk plants, 30 concerned licenses and fees, 37 concerned containers and dispensers, 12 concerned standards, and 27 concerned milk control agencies. There were only 5 items in 1946, but in 1950 there were 53. Between 1951 and 1954 the number ranged from 21 to 31.

In 1950, 20 out of the 53 items concerned limitations on pasteurization or processing. In this category, there were 78 items in the 9-year period, of which 53 items appeared in the 3 years, 1948–50. This coincides with the years when the largest number of milk plants began to distribute milk beyond their local markets in the north-central region (*50*, pp. 11–13).

These figures roughly indicate the newsworthiness of various kinds of restrictions and how it changed from year to year. The items concerned mostly either challenges to existing restrictions or attempts to impose new restrictions. Items reporting restrictions repealed or successfully challenged in court outnumbered those upheld or newly enacted about 2 to 1.

Legal Aspects

Because of space limitations it is not possible to include, in this study, a fully comprehensive discussion of the many court cases, reported and unreported, which, in recent years have been brought to challenge the legality of various "health" and economic regulations relating to the production and distribution of fluid milk. The presence, nature and outcome of such litigation are, however, of importance in an overall study of such regulations for they tend to show the areas in which conflicts have arisen, the kinds of regulations which have been challenged and the limits beyond which such regulations may not legally be made effective or enforceable.

Most States authorize State or local health authorities to exercise sanitary inspection and licensing powers over the production and distribution of milk so as to assure a sanitary, safe, and healthful supply of pure milk for the community. Such inspection and licensing occurs both at the farm and distribution levels and usually requires pasteurization at the distributing plant. The courts generally have upheld such enabling acts and regulations as a lawful exercise of the State

police powers over an industry which vitally affects the public health and is "affected with the public interest." [4]

However, health regulations which impose restrictions on inspection or licensing which are not reasonably related to sanitary or quality considerations have generally been held to be unauthorized and unlawful under such enabling statutes.[5] Thus, in recent years, health regulations which exclude milk produced or pasteurized beyond specified distances from the community have generally been held to be illegal and unenforceable.[6] Similarly, health authorities may not refuse to license otherwise pure and wholesome milk merely because the community is already adequately served,[7] because the inspection would be too costly [8] or for other economic reasons not related to health and sanitation.[9] Although reasonable license fees may be im-

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[4] See, e. g., *Natural Milk Prod. Ass'n* v. *San Francisco*, 20 Cal. 2d 101, 124 p. 2d 25; *Meridian Limited* v. *Sippy*, 54 Cal. App. 2d 214, 128 P. 2d 884; *Stracquadanio* v. *Dept. of Health of the City of New York*, 285 N. Y. 93, 32 N. E. 2d 806, aff'd 259 App. Div. 994, 20 N. Y. S. 2d 965; aff'd 20 N. Y. S. 2d 964, app. to C. A. denied 21 N. Y. S. 2d 611; *Leach* v. *Coleman*, 188 S. W. 2d 220 (Tex.); *Welsh Farms* v. *Bergsma*, 16 N. J. S. 295, 84 A. 2d 631 (1951).

[5] Thus, in the recent case of *Embassy Dairy* v. *Camalier*, 211 F. 2d 41 (C. A. Dist. Col. 1954) the court said (p. 44):

"To sustain the Commissioner's order under attack here, we think the District Court must find, in the further proceedings upon remand of this case, that the order is realistically necessary to effectuate the Act's purpose of protecting the health of District consumers. It cannot be sustained upon a finding that there is 'an available supply of locally inspected milk more than sufficient to meet the present and reasonably foreseeable requirements of the consumers in this area.'"

[6] See *inter alia*, *Gustafson* v. *City of Ocala*, 53 So. 2d 658 (Fla. 1951); *State ex rel Larson* v. *City of Minneapolis*, 190 Minn. 138, 251 N. W. 121; *Miller* v. *Williams*, 12 F. Supp. 236 (DC Md. 1935); *Whitney* v. *Watson*, 85 N. H. 238, 157 A. 78 (1931); *La Franchi* v. *City of Santa Rosa*, 8 Cal. 2d 331, 65 P. 2d 1301 (1937); *Van Gammeren* v. *City of Fresno*, 51 Cal. App. 235, 124 P. 2d 621 (1942); *Otto Milk Co.* v. *Rose*, 375 Pa. 18, 99 A. 2d 467 (1953); *Sheffield Farms* v. *Seaman*, 114 N. J. L. 455, 177 A. 372; *Urban* v. *Taylor*, 14 N. J. Misc. 887, 188 A. 232; *City of Wewoka* v. *Rose Lawn Dairy*, 202 Okla. 286, 212 P. 2d 1056; *City of Grand Haven* v. *Grocers Coop. Dairy Co.*, 330 Mich. 694, 48 N. W. 2d 362 (1952); *Root* v. *Mizel*, 92 Fla. 979; 117 So. 380 (discriminatory fees against distant milk); *Grant* v. *Leavell*, 259 Ky. 267, 82 S. W. 2d 283; *State ex rel Safeway Stores* v. *Omdahl*, 258 P. 2d 1065 (Wash. 1951); *Knudsen Creamery Co.* v. *Brock*, 221 P. 2d 306 (Cal. 1950); *Dean Milk Co.* v. *City of Aurora*, 404 Ill. 331, 88 N. E. 2d 827; *Dean Milk Co.* v. *City of Waukegan*, 403 Ill. 597, 87 N. E. 2d 751; *City of Electra* v. *Carnation Co. of Texas*, 207 S. W. 2d 192 (Tex. 1948); *Contra-Wright* v. *Richmond County Dept. of Health*, 182 Ga. 651, 186 S. E. 815 (1936); *Dyer* v. *City of Beloit*, 250 Wis. 613, 27 N. W. 2d 733.

[7] *Embassy Dairy Inc.* v. *Camalier*, 211 F. 2d 41, 44 (C. A. D. C. 1954); *Otto Milk Co.* v *Rose*, 375 Pa. 18, 99 A. 2d 467 (1953); *Sheffield Farms* v. *Seaman*, 114 N. J. L. 455, 177 A. 372; *Urban* v. *Taylor*, 14 N. J. Misc. 887, 188 A. 232 ( ); *Safeway Stores* v. *State Bd. of Agriculture*, 255 P. 2d 564 (Oregon 1953).

[8] *Otto Milk Co.* v. *Rose*, 375 Pa. 18, 99 A. 2d 467 (1953); *Sheffield Farms Co., Inc.* v. *Seaman*, 114 N. J. L. 455, 177 A. 372; *Urban* v. *Taylor*, 14 N. J. Misc. 887, 188 A. 232; *State ex rel Larson* v. *City of Minneapolis*, 190 Minn. 138; 251 N. W. 121.

[9] *Welsh Farms* v. *Bergsma*, 16 N. J. S. 312, 84 A. 2d 631 (1951) ("Call" requirement and label as to source); *City of Wewoka* v. *Rose Lawn Dairy*, 202 Okla. 286, 212 P. 2d 1056 (allegedly too difficult to inspect distant producers); but see *Independent Dairymen's Assn.* v. *Denver*, 142 F. 2d 940 (1944) (prohibiting gallon jugs within police power) and *Dean Milk Co.* v. *City of Chicago*, 385 Ill. 565, 53 N. E. 2d 612 (1944) (Ordinance requiring "standard" milk bottle not unreasonable).

posed [10] to defray necessary costs of legitimate inspections, an unreasonably burdensome multiplicity of fees and inspections may not be required.[11]

The foregoing cases deal essentially with health authority mandates under State statutes and constitutions with respect to intrastate movements of milk. As shown below (p. 66), the police powers of the States extend to appropriate economic controls over milk distribution, if the State has duly authorized them and if such controls do not infringe upon the Federal jurisdiction over interstate commerce.

If, however, a health authority of a State sets up unreasonable barriers against milk from another State in the guise of a "health" regulation, it invades the interstate commerce powers exclusively held by the Federal Government. In *Dean Milk Co.* v. *City of Madison*, 340 U. S. 349, the Supreme Court held unconstitutional an ordinance requiring pasteurization of milk within five miles of the City of Madison, because the ordinance was not reasonably necessary to safeguard the public health and because, in the circumstances of the case, it was evidently designed to exclude from Wisconsin, wholesome milk produced and bottled in Illinois. In so holding the court said (p 354):

> In thus erecting an economic barrier protecting a major local industry against competition from without the State, Madison plainly discriminates against interstate commerce. This it cannot do, even in the exercise of its unquestioned power to protect the health and safety of its people, if reasonable non-discriminatory alternatives, adequate to conserve legitimate local interests, are available.

Historical Information From Interviews

Interviews with milk dealers and others commonly revealed examples of regulations which had restricted the movement of milk in the past, but which had been eliminated for one reason or another. Such examples came out most frequently in conversations with milk dealers who had been expanding the areas in which they distributed bottled or packaged milk. That they had been able to overcome many of the regulatory obstacles was a significant fact. The most flagrant types of discrimination sometimes had been withdrawn after negotiations, and if legal action were taken such regulations generally fell before the scrutiny of the courts. But this did not always curb the urge to restrict. It was reported that in some instances fees for licenses or inspection were levied to discourage outside distributors when other restraints failed. Nevertheless, it appeared that the net result of the expansion of distribution areas was a reduction in the number of obstacles.

Milk plants interested mainly in bulk milk were less certain on the whole that freedom of movement had changed materially. Repeatedly, they said that their ability to move milk across the line of routine inspection depended on the availability of local supplies. Health officers had a tendency, as local supplies increased, to not renew or to

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[10] *Dean Milk Co.* v. *City of Madison*, 340 U. S. 349; *Otto Milk Co.* v. *Rose*, 375 Pa. 18, 99 A. 2d 467 (1953); *State ex rel Larson* v. *City of Minneapolis*, 190 Minn. 138, 251 N. W. 121.

[11] *Root* v. *Mizel*, 92 Fla. 979, 117 So. 380 (1928); *City of Abilene* v. *Tennessee Dairies*, 225 S. W. 2d 429 (Tex. Civ. App. 1949); *City of Henryetta* v. *Rose Lawn Dairy*, 239 P. 2d 744 (Okla. 1952).

terminate approvals of distant plants as sources of supply. This reflected changes in policies, significant because administrative policy often has as much effect as the written law. The changes in policy also are a symptom of circumstances that could result in new restrictive enactments being passed.

National Conference on Interstate Milk Shipments

The National Conference on Interstate Milk Shipments is one way in which a definite step toward freer movement of milk has been taken. There has been mention of the strong tendency to confine approval of milk supplies to local sources as long as they are adequate. But this tendency had its converse in the granting of approvals to outside sources when local supplies were short. When this happened in the past the health officer often had neither time, funds, nor personnel to inspect and approve emergency sources. This may not have been so serious when the emergency supplies could be obtained from plants which were part of the regular supply of some large city. But when these sources ran short too, then milk had to be obtained from plants which were unable to obtain acceptable routine supervision.

The preceding paragraph describes the situation from the point of view of the deficit markets. Plants in the milk producing areas would have been glad to sell milk for fluid use. They found it difficult, though, to persuade local health authorities to supervise a supply of milk for shipment to other parts of the country.

The problem of the deficit markets in finding acceptable sources, and the problem of surplus areas in establishing proof of the quality of their milk brought milk sanitation officials of several States and the U. S. Public Health Service together in a National Conference on Interstate Milk Shipments which first met in 1950. In this meeting and subsequent meetings in 1951, 1952, 1953, and 1955 a program for rating dairy plants for interstate milk shipment was worked out. Under this program, plants which are under routine supervision of an official local or State agency may be given ratings by the State milk control authority. The plant's supply must be under an approved program of routine laboratory control. Ratings and laboratory procedures of the States are spot checked and certified by the Public Health Service. A list of rated interstate milk shippers, who so request in writing, is published quarterly.

Under the Conference's program, the Public Health Service is responsible for a standardized procedure for rating its own personnel and State rating officials. There are detailed directions for sealing shipments, for the form, contents, and distribution of copies of bills of lading accompanying shipments, and for notices of degrading. The program calls for each certifying State to maintain a record of each shipper's receipts and utilization, based on reports which are audited periodically.

The Conference has also considered numerous aspects of the problem of obtaining healthful supplies of dairy products, other than the mechanics of certifying sources of fluid milk. Some of these are: Certification of manufactured dairy products used in cream, flavored milk, buttermilk, etc.; standards for canned sterilized whole milk; use of inspections made by dairy plant fieldmen; brucellosis eradica-

tion; and methods of financing the sanitary supervision of milk for sale outside local areas.

The list of sanitation compliance ratings issued by the U. S. Public Health Service on January 1, 1955, included 480 plants located in 32 States and the District of Columbia. Wisconsin led with 87 plants; Illinois was second with 70; and Indiana, Iowa, Missouri, North Carolina, and Oklahoma each had 25 or more.

Qualifications of Sanitarians

Confidence is indispensable where one jurisdiction is to accept milk produced under the supervision of another jurisdiction. The basis for confidence rests in part on the qualifications of the supervising sanitarians. There is evidence that more attention is being given to this problem. Five States now have legislation requiring the registration of sanitarians. Such laws cover men employed in food control and other phases of environmental sanitation as well as milk sanitarians.

The International Association of Milk and Food Sanitarians has given its attention to the matter of professional qualifications of sanitarians (*3*). A committee of that Association has recommended standards covering the definition of "sanitarian," and the qualifications of education, experience, and personal attributes that are desirable in a sanitarian.

Harold S. Adams, chairman of the committee referred to above, writes, "While it must be admitted that not all appointments to positions in the milk control field are based on merit, and that political appointments are still made, the overall trend is decidedly toward the appointment of men who by training or experience, or by both, are qualified to do regulatory work. The membership of the International (Association of Milk and Food Sanitarians, Inc.) alone has grown by more than one thousand members within the past five years and this is indicative of a trend and a desire on the part of milk sanitarians to keep abreast of new technological developments and to learn more about improved regulatory procedures." [12]

OTHER STANDARDS FOR PRODUCT OR SERVICE

STANDARDS OF COMPOSITION AND IDENTITY

Variation in standards of composition for milk and dairy products is a potential source of discrimination among States. Hillman et al. acknowledged that the variations were small, but stressed the possible inconvenience and expense to firms doing interstate business (*35*, p. 47).

In the marketing of bulk whole milk, it is customary for the selling plant to standardize the milk-fat test to the buyer's specifications, so there is no burden or unusual difficulty in making adjustments to

[12] By letter, March 18, 1955, and May 3, 1955.

State standards.[13] Also, most bottled milk contains 3.5 to 4.0 percent of milk fat, while most State standards require minimums of only 3.0 to 3.25 percent (the highest in 1953 was 3.5 percent) (*69*). In the marketing of packaged fluid milk and related products the problem of butterfat standards is more serious. Parts of the distribution area served by a single plant may lie in two or more States, and it would be expensive to package milk of different composition for each State. Meeting the highest standard may be a competitive handicap in areas where the standards are lower.

A summary of selected standards for dairy products shows differing amounts of variability (table 17). The minimum fat content of butter is 80 percent in every instance. Other products show varying ranges in standards—for *milk sherbet* the highest State standard for *minimum milk fat* content is five times as high as the lowest State standard, a range from 2 to 10 percent.

Standards of composition and identity perform a useful function in protecting consumers against adulteration and fraud. But a problem arises when the standards are so drawn that experimentation with new products is discouraged or prevented. Technological developments, changes in eating habits and changes in economic conditions all may justify the introduction of new types of dairy products.

An example of a new product whose adoption was retarded by existing standards is "half-and-half," the product which is approximately half milk and half light, or coffee, cream. It first appeared on the market before World War II (*34*). Its widespread adoption was retarded by the fact that, under some standards, any product for which there was no specific standard could not legally be sold.

It is understandable that dairy laws written years ago might have failed to provide for products then unknown. It has sometimes been difficult to get the necessary changes made to sanction new products. New products often are substitutes for older products, potentially conducive to fraud, and if closely competitive they may be highly disruptive in the market.

To assess fairly the various reasons for not sanctioning new products is one of the most difficult problems in the field of dairy regulation. The struggle over oleomargarine legislation may seldom be equalled for bitterness. Currently, the products over which standards are at issue range from filled milk and filled cheese, through frozen desserts made with fats other than milk fats, frozen desserts using only milk fat and solids-not-fat, but outside the legal limits for ice cream and sherbet, down to dairy products which are modified only by the addition of nonfat dry milk. Vitamin fortification is one of the recent practices on which State standards disagree. It is reported that 21 States permitted multi-vitamin fortification of whole and skim milk in the fall of 1954 (*2*, p. 128).

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[13] There are some States in which standardizing (adjusting the milk-fat content by adding or removing cream or skim milk) is not legal. Whole milks of differing milk-fat percentages may be blended, but this is an inconvenient, and sometimes impractical, means of accomplishing the desired adjustment.

TABLE 17.—*Summary of Federal and State standards for the composition of milk products*

[Minimum percent]

	Number of standards [1]	Low	High	Mode
Milk:				
Milk fat	52	3.00	3.80	3.25
Nonfat milk solids	38	8.00	9.00	8.50
Total milk solids	36	11.00	12.00	11.75
Cream:				
Milk fat	52	16.00	22.00	18.00
Evaporated milk:				
Milk fat	46	7.70	7.90	7.80
Total milk solids	46	25.50	26.50	25.50
Sweetened condensed milk:				
Milk fat	45	7.70	8.50	8.00
Total milk solids	45	25.00	28.00	28.00
Butter:				
Milk fat	50	80.00	80.00	80.00
Skim milk:				
Total milk solids	26	8.00	9.30	8.50
Condensed skim milk:				
Total milk solids	15	18.00	24.00	20.00
Dried milk:				
Milk fat	19	26.00	27.00	26.00
Water	19	5.00	5.00	5.00
Nonfat dry-milk solids:				
Milk fat	8	1.50	1.50	1.50
Water	19	5.00	5.00	5.00
Plain ice cream:				
Milk fat	51	8.00	14.00	10.00
Total milk solids	25	18.00	21.00	18.00
Weight per gallon	29	4.25	4.75	4.50
Food solids per gallon	28	1.60	1.80	1.60
Fruit, nut, or chocolate ice cream:				
Milk fat	51	6.00	12.00	8.00
Total milk solids	23	14.00	21.00	14.00
Weight per gallon	28	4.25	4.75	4.50
Food solids per gallon	27	1.40	1.80	1.60
Frozen custard:				
Milk fat	35	6.00	14.00	10.00
Total milk solids	18	14.00	20.00	18.00
Weight per gallon	14	4.25	4.75	4.50
Egg yolks per 90 lbs	15	2.50	5.00	5.00
Milk sherbet:				
Total milk solids	22	2.00	10.00	4.00
Acid	26	.35	.40	.35
Stabilizer	12	.50	1.00	.50
Weight per gallon	8	4.25	6.00	[2]
Ice milk:				
Milk fat	23	2.00	4.00	3.00
Total milk solids	11	10.00	14.00	14.00
Stabilizer	17	.50	.60	.50
Weight per gallon	8	4.25	6.00	4.50
Cheddar cheese:				
Milk fat in solids	43	50.00	50.00	50.00
Water	33	38.00	40.00	39.00
Swiss cheese:				
Milk fat in solids	21	43.00	45.00	45.00

[1] Number of jurisdictions which indicate a specific standard. Based on a total of 53 jurisdictions including the 48 States, Alaska, Hawaii, Puerto Rico, the District of Columbia, and the Federal Government.
[2] 2–4.5, 2–5.5, 2–6.0.

Based on "Federal and State Standards for the Composition of Milk Products," Agriculture Handbook No. 51, U. S. Dept. Agr., January 1953.

CONTAINERS

One of the significant trends in dairy marketing methods has been the growing use of containers holding more than one quart (*1*, p. 104). This development also has been restricted by laws which specify the sizes of containers which shall be legal, but which fail to list half-gallon and gallon sizes. Again, a law intended to protect consumers against fraud has served also to protect established practices against a new competitor.

BULK DISPENSING

Wainness commented that "milk has been dipped, ladled, poured, siphoned, drawn from and pumped from" bulk containers for many years (*77*, p. 76). Sanitation was largely ignored, and not until the 1930's was dispensing equipment developed that was satisfactory from a public health standpoint. There are still a few States that do not approve bulk dispensers. Some of the States which do permit their use have regulations which prevent them from reaching their maximum usefulness, regulations which: do not permit milk to be kept in the dispenser more than 24 to 48 hours; regulate the quantity of milk which may be dispensed in a single serving; permit only specified sizes of dispenser cans; and permit the dispensers to be used only in specified locations.

VENDING MACHINES

Another recent milk merchandising development which has encountered regulatory handicaps is the use of vending machines which dispense packaged milk. The type for indoor use appears to have encountered no serious regulatory restrictions. Use of outdoor-type machines, on the other hand, has been limited sharply in a number of jurisdictions. In some instances, they have been directly prohibited. In other instances, building codes and zoning regulations have been invoked against them.

Direct prohibition of the use of outdoor-type milk vending machines appears to be arbitrary and discriminatory. The motive for such an extreme regulation seems to be mainly a desire to protect established methods of sale from competition. The same motive may lie behind the discriminatory application of building codes and zoning ordinances, but in these instances there are substantial matters of fact involved: Under the building code, does the structure meet reasonable requirements of public safety and sanitation? Under the zoning laws, is the activity generated by an outdoor milk vending machine materially different than other activities permitted in the given zone?

STATE AND FEDERAL CONTROL OF MILK PRICES

INTRODUCTION

Beginning about World War I, there began to develop a system of marketing fluid milk in the United States which featured the organization and attempted control of the supply by producers. Such groups bargained with dealers over prices, more or less successfully, up until the beginning of the general depression of the 1930's, when it became necessary to bring governmental powers to their aid. During the 1930's, the Federal Government and nearly half the States set up laws to regulate prices of milk to be paid to producers. In many instances prices at which milk dealers sold milk were regulated also.

Necessity for Control

The necessity for governmental intervention in milk marketing arises from certain compelling characteristics of the supply of and demand for milk. Both the supply of milk (at the farm level) and

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demand for it by consumers are inelastic, that is, production and consumption respond slowly and imperfectly to changes in price. Production persistently fluctuates between a spring peak that may be 20 to 40 percent above the monthly average for the year to a low point in the fall, 10 to 30 percent below the average. Sales, on the other hand, reach peaks of only 3 or 4 percent above average (and this mostly during months in which production is below average) and low points 5 to 7 percent below average (mostly during July when production is still above average (*12*).

Price is imperfectly effective in bringing production and consumption into balance seasonally. Milk which cannot be sold as fresh bottled milk, therefore, is made into manufactured products.

If production and consumption of milk were nicely balanced throughout the year, each city would be surrounded by a supply area within which milk producers would receive higher prices for their milk than could be paid by milk manufacturing plants. The fact that milk for fluid use is subject to more rigid sanitary requirements than is milk for manufacture accounts for much of the difference in price that usually is found. A further factor is that most cities must gather milk over a wider area than is usually served by any single milk manufacturing plant, and the price at the city must reflect the cost of transporting milk the added distance. It costs more to ship milk a given distance than it does to ship the products which may be made from that milk.

Granting the need to convert part of the fluid milk supply into manufactured products, and the difference in price of milk used for fluid and for manufacturing purposes, it is evident that the net return available to farmers for part of a city's milk supply is less than the price at which milk for bottling purposes will be continuously available.

The Flat Price Plan

In unregulated markets, with producers unorganized, dealers may adjust to the supply, demand, and price situation just discussed by buying on a "flat" price the year around. They would then lose money on surplus milk, but this loss could be covered by setting a wider margin on fluid milk sales than needed to cover the direct costs of processing and distributing. Such a policy turns out to be most unstable, for any dealer who can avoid buying any milk in excess of his requirements for fluid milk sales may make huge profits, or may cut retail prices to a level that will not cover the costs of handling surplus milk. Similarly, any dealer who can find a buyer for his "surplus" at anything above the value of the milk for manufacturing purposes finds it highly profitable. Dealers' efforts to exploit these opportunities have repeatedly led to the breaking down of flat price systems.

The Classified Price Plan

The classified price system was substituted for flat pricing in order to remove the temptations inherent in flat pricing. With classified pricing, the dealer's margin on sales of fluid milk no longer needed to be wide enough to cover losses on the surplus. Milk for each use was priced close to its net value. But markets continued to be disrupted

where classified price plans were established by negotiation between producers and dealers. Dealers who remained outside the plan and who had less surplus than the market average could profit more than those who accepted the plan. They could buy milk at, or a little above, the average or "blend" price established by the classified price plan. By minimizing their surplus, they would be buying milk for fluid sales at less than the price (Class I) established for this use by the plan. Thus, the common description of such operations, "Buy at the blend and sell at Class I."

Evaluation of Control

The unsettled condition of fluid milk markets which brought about State and Federal regulation of milk prices in the early 1930's was due to more than a simple breakdown of the methods of pricing milk to producers. Extreme economic distress and outbreaks of violence were problems that had to be solved. The goal was to raise prices, as well as to stabilize them in relation to farmers' alternatives which then were poor indeed.

As the depths of the depression were passed, milk price control programs were relied on increasingly to bring stability alone, rather than to raise prices out of relation to farmers' and milk dealers' alternative opportunities. Restraints on economic activity which were accepted in more critical times have been increasingly brought into question.

Control has been exercised over the prices at which dealers buy milk from farmers, and at which dealers sell to their customers. When milk price controls were first adopted in the early 1930's, both State and Federal programs regulated resale prices. The Federal Government soon gave up its control over resale prices, as did some States. Control over prices to producers is considered necessary mainly to stabilize and maintain income. Control over resale prices is advocated in part as being necessary to ensure the successful regulation of prices to producers, and in part to stabilize and maintain the income of milk dealers.

State and Federal control of milk prices is of interest in this study because the supplemental provisions needed to make price regulations effective are potentially impediments to the movement and merchandising of milk.

In total, prices to producers are regulated by governmental agencies for about 38 percent of the milk produced in the United States and 68 percent of the nonfarm population buy this milk.

Legal Aspects of Economic Controls

Various economic controls over the distribution of milk have generally been held to be properly within the police powers of the States as properly regulating an industry "affected with a public interest," provided that the State does not thereby invade the interstate commerce jurisdiction of the Federal Government. Most of these regulations have taken the form of minimum pricing regulations, applicable to purchases from farmers and/or resales to the public.[14] The State

[14] See, e. g., *Nebbia* v. *New York*, 291 U. S. 502; *Hammerberg* v. *Leinert*, 132 Conn. 596, 46 A. 2d 420; *Savage* v. *Martin*, 61 Oregon 660, 91 P. 2d 273; *Harris-*

of New York also regulates procurement within the State by licensing requirements on a modfied "convenience and necessity basis" and such regulation has also been upheld as to intrastate operations.[15]

The State may not, however, by means of any such regulation, regulate transactions in milk beyond its borders [16] or prevent milk from within its borders from moving to another state so as to protect its local milk requirements.[17]

The Federal Government through the Agricultural Marketing Agreement Act of 1937, as amended (7 U. S. C. 601 *et seq.*) has jurisdiction to issue regulatory orders for the minimum pricing of milk in or affecting interstate commerce. The Supreme Court has upheld the constitutionality of such regulations.[18] Under the act, the Secretary of Agriculture may act jointly with a State authority in issuing appropriate orders. The act does not provide for fixing resale prices as between handlers or to the consuming public. If the Federal Government has not entered the field by the issuance of its own order, a State may issue a price-fixing order applicable to milk produced within the State but which later moves in interstate commerce.[19] A State also may fix resale price on milk which originates beyond its borders but is sold, at retail, within the State.[20]

FEDERAL MILK MARKETING ORDERS

Authorization

Federal orders in their present form are issued under the atuhorization of the Agricultural Marketing Agreement Act of 1937 (*67*). In this Act, Congress stated its policy regarding milk to be carried out under the Act in these terms:

1. * * * "To establish and maintain such orderly marketing conditions * * * in interstate commerce as will establish prices to farmers (parity prices). * * * The prices which it is declared to be the policy of Congress to establish * * * shall be adjusted to reflect the price of feeds, the available supplies of feeds and other economic conditions which affect market supply and demand for milk or its products. * * *

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burg Dairies v. *Eisaman*, 46 Dauph 122, affirmed 338 Pa. 58, 11 A. 2d 875; *State* v. *Auclair*, 110 Vt. 147, 4 A. 2d 107; State ex rel. *Dept. of Agric.* v. *Marriott*, 237 Wis. 607, 296 N. W. 622, appeal dism; *Reuter* v. *State of Wis. ex rel. Dept. of Agric.*, 314 U. S. 571; *Borden's Farm Products* v. *Ten Eyck*, 297 U. S. 251; *Highland Farms* v. *Agnew*, 300 U. S. 608; *Taylor* v. *State ex rel. Alabama State Milk Control Bd.*, 237 Ala. 178, 186 So. 463; *Ex parte Willing*, 12 Cal. 2d 591, 86 P. 2d 663; *Miami Home Milk Prod. Assn.* v. *Milk Control Board*, 124 Fla. 797, 169 So. 541; *Gibbs* v. *Milk Control Bd. of Georgia*, 185 Ga. 844, 196 S. E. 791; *Albert* v. *Milk Control Board*, 210 Ind. 283, 200 N. E. 688; *Rohrer* v. *Milk Control Board*, 322 Pa. 257, 186 A. 336. *Contra-Maryland Coop. Milk Prod.* v. *Miller*, 170 Md. 81, 182 A. 432; *Rowell* v. *State Board*, 98 Utah 353; 99 P. 2d 1.

[15] Agriculture and Markets Law of New York State, Sec. 258j.

[16] *Baldwin* v. *Seelig*, 294 U. S. 511, which held that New York State could not fix minimum prices to producers who deliver to plants outside of New York State.

[17] *H. P. Hood & Sons* v. *DuMond*, 336 U. S. 525.

[18] *United States* v. *Rock Royal*, 307 U. S. 533 (1939); *H. P. Hood & Sons* v. *United States*, 307 U. S. 588 (1939); *United States* v. *Wright Dairy Co.*, 315 U. S. 110 (1943).

[19] *Milk Control Board* v. *Eisenberg Farms*, 306 U. S. 346 (1939).

[20] *County Board of Arlington County et al.* v. *State Milk Commission*, 346 U. S. 932; motion for leave to file petition for rehearing denied, 347 U. S. 924.

Whenever the Secretary (of Agriculture) finds * * * that the (parity) prices * * * are not reasonable in view of the (above conditions) he shall fix such prices as he finds will reflect such factors, insure a sufficient quantity of pure and wholesome milk, and be in the public interest. * * *

The Secretary of Agriculture may issue an order regulating prices to producers who supply any marketing area when they ask for and approve the order, and when he finds that an order will effectuate the purposes of the Act.

The Act requires that producer prices be established on a "classified use" basis. Orders may provide for the payment of prices which will be uniform either to all producers selling to a given handler (individual handler pool), or to all producers of all handlers under the order (marketwide pool), subject to appropriate differentials. An order may provide that payments to a new producer, "for the period beginning with the first regular delivery by such producer and continuing until the end of two full calendar months following the first day of the next succeeding calendar month, shall be made at the price for the lowest use classification * * *"

The act provides that: "No marketing * * * order * * * shall prohibit or in any manner limit, in the case of the products of milk, the marketing in that area of any milk or product thereof produced in any production area in the United States." [21]

The application of the act is specifically to the establishment and maintenance of orderly marketing in interstate commerce.

The language of the act, "sufficient quantity of pure and wholesome milk," has implications significantly related to the movement of milk. The administration of the orders, keyed to this directive has been attended by criticisms and complaints, often indicative of disagreement over the purpose of the orders and over the necessity for the methods that are used to fulfill this purpose.

Adequate Supply

The stated intent of the act is that sufficient milk be available at all times to fulfill the market area's need for pure and wholesome milk.

The "adequate supply" standard prescribed by the act has an important role in the determination of policies for the administration of the program and some complaints that the Federal orders restrict the movement of milk fundamentally rest on disagreement over what constitutes an adequate supply. The principal complaint has been that in administering the orders, prices have been set too high, that this tended to bring forth a more than adequate supply, and that

[21] A United States Court of Appeals held that "unless the statute is interpreted to mean that the language 'or in any manner limit' refers to milk products, then the language 'in the case of the products of milk' is without meaning and might as well have been left out of the Act." The court concluded that provisions of the order which might limit the marketing of milk were within the authority of the act. (*Bailey Farm Dairy Co. et al.* v. *Anderson*, 157 F. 2d 87, Sept. 1946).

the orders have adopted provisions restricting the movement of milk in order to offset the higher prices.

The purpose of the discussion in the following pages is primarily to evaluate the order provisions which may be restrictive in this manner.

Measurement

There are several elements in measuring whether a supply is adequate by this standard: One concerns the definition of purity and wholesomeness; another concerns the uses to which the supply should be related; a third is the interval of time over which a balance must be assured; and a fourth concerns the extent of reliance on "local" as contrasted with "outside" sources.

In administering orders under the act, pure and wholesome milk is considered to be milk which is acceptable to the health authorities in the marketing areas. Had Congress intended other standards to be used, presumably they would have been set out in the act.

In the health ordinances of some cities, inspection and approval is required only for the milk used for fresh fluid milk; cream, skim milk, chocolate milk, etc. being permitted to come from uninspected milk. Other markets require the same inspection and approval for all milk utilized in any bottled milk products. There is a growing tendency among city health departments to require such approval also for milk used in certain manufactured products.

The Federal orders usually include in Class I those products which must be made from milk meeting local sanitary requirements for fluid milk. Thus Class I milk under one order may be used in more products than Class I milk under another order.

The uses for which the supply must be adequate are usually those included in Class I—the supply of milk of the quality specified by the health authorities must at least equal sales in this class to be considered adequate.

Because of day-to-day fluctuations in production of milk and of Class I sales, over a period of a month there must be a substantial excess of supply over actual Class I sales. It is generally considered that this operating reserve needs to be 15 to 20 percent in excess of Class I sales.

There is a problem of assuring an adequate supply not only from day to day, but from season to season and year to year. Seasonal patterns of production and sales are fairly predictable. Since producers willing and able to meet sanitary standards for fluid milk often are not available instantly when needed, dealers customarily buy year-round from as many producers as needed to supply requirements in the season of lowest production. The extra production during other seasons constitutes the seasonal reserve.

Year-to-year fluctuations in levels of production and sales also are a factor in the adequacy of supply. During the past 20 years, or even the past 10, there have been periods when fluid milk markets generally had supplies far in excess of Class I sales plus operating and seasonal reserves, alternating with other periods when these markets, in the low production months, were in a scramble to find "emergency" supplies.

When a price policy is being appraised on the basis of whether it

has resulted in an adequate supply, criticism based on periods of oversupply must be tempered if under the same price policy the same markets have experienced periods of undersupply.

Granted that an adequate supply must cover day-to-day and seasonal variations, and that year-to-year fluctuations may also occur, there is a question whether the balance should be achieved from wholly local sources, or whether, and to what extent, availability of "outside" sources should enter the calculation.

The distinction between local and outside for this purpose is usually in terms of direct routine supervision by the local health authorities. In another sense local means the contiguous milkshed area adjacent to a given city or metropolitan area. Since some farms and milk plants in such a milkshed may not ship to, or be under the supervision of, the given city they would be considered to be outside for purposes of deciding whether they are part of the available supply.

The most rigorous policy would require pricing to bring forth an adequate supply of local milk under all circumstances. Such a policy would be considered a failure if under any circumstances outside milk were needed to meet Class I needs in the market.

As the other extreme would be a policy of setting prices so low that local milk would be sufficient only at the season of highest production, with outside source milk depended on to make up the deficit in supplies during the short season.

Assuming that quality of the available outside-source milk is equal to that of local milk and that the services performed by outside sources are comparable with those provided locally, it is possible to work out a theoretical balance between local supplies and outside-source milk that will give the market sufficient supplies at lowest cost.

The assumptions underlying such a theoretical analysis are difficult or impossible to evaluate for practical purposes. First, under the sanitary regulations of many cities outside-source milk is not considered equal in quality to local milk. Second, further limitations were found in the attitudes of milk dealers surveyed during the course of this study. The majority of these dealers (including those in some cities where Class I prices were much higher than the "Wisconsin-plus" figure) stated that they preferred to obtain their supplies from local sources. Reasons given included: (a) The quality of local supplies could be controlled more readily than that of outside-source milk, (b) local supplies were more reliable than outside supplies, both in the sense that quality was more reliable and that the time of delivery was more reliable, and (c) when outside milk was needed, it was not always readily available or was available only at prices much higher than local milk. Third, marketing arrangements between local producers' cooperatives and local milk distributors may make it advantageous for the distributors to get milk supplies locally for reasons other than price. Fourth, health departments generally prefer to have the milk supply under their direct supervision. To keep the cost of inspection within their budgets they may favor local milk, regardless of milk prices.

In general, dealers and producers in most markets take the position that an adequate supply of milk is one that will meet Class I requirements in the season of lowest production and that they need this supply from local or nearby sources. However, the attitude toward defining "adequate supply" in any market may vary with the availability of

supplies of outside-source milk of suitable quality, and the adequacy of local milk supplies, under existing institutional and regulatory conditions.

The influence which local standards for purity and wholesomeness may have on the terms of a Federal order are illustrated by the order regulating the New York City marketing area. The city will not inspect plants beyond the western boundary of Pennsylvania. Also, the city, in common with many other markets, permits cream to be obtained only from farms and plants meeting the requirements for supplying fluid milk. The order accordingly prices milk used for cream so that the plants in the outer zones of the milkshed will obtain about as great a net return from shipping cream and fluid skim milk products to market as would be obtained from shipping fluid whole milk. The resulting price for fluid cream at New York is higher than in Boston and Philadelphia by approximately $6 per 40-quart can of 40 percent cream (2 cents per half pint of light cream—20 percent butterfat). Were the New York City Health Department willing to inspect midwestern plants and its requirements were approximately equivalent to those of the fluid milk markets for which these plants are presently qualified, they could be expected to offer cream for shipment into New York at prices commensurate with those prevailing in Boston and Philadelphia. The cream price provisions of the order would undoubtedly be revised.

Supply Ratios in Federal Order Markets, 1952–54

The percentages of product weight and butterfat pounds of milk delivered by producers which was used in the fluid classes in each Federal order market are compared for the short-supply months of each of the years 1952, 1953, and 1954 in table 18. If the product pounds disposed of in the fluid classes are greater than the milk equivalent of the butterfat used, the percentage is computed in terms of product weight. If the butterfat used in fluid sales required a greater proportion of the butterfat delivered in producer milk, the percentage is computed on the butterfat basis.

These utilization percentages vary widely in the different markets. Except in the Texas markets where the utilization percentages are high in all markets, there is no consistency in the level of utilization percentages in a given region. In the Minnesota-Western Iowa-South Dakota region, the Duluth-Superior market had the lowest ratio of fluid sales to producer deliveries in the low production months. In the same region, the Sioux Falls-Mitchell area had a deficit of producer milk for fluid uses and the Minneapolis-St. Paul market came close to having all producer deliveries used in fluid sales. The same wide variation occurred in the markets bordering Lake Erie where the Fort Wayne market had only 65 percent of producer milk in fluid sales in October 1954 whereas Toledo, only 100 miles away, was apparently short of producer milk. In New England the Boston market had a much lower fluid use than the smaller markets in the region. Usually the very small markets within a region tended to have higher than the average percentage of producer receipts in fluid use although there were exceptions as in the case of Dubuque and Duluth-Superior.

TABLE 18.—*Utilization percentages: Milk used in fluid form or forms requiring equal health approval, as percentage of milk received from producers, October and November 1954, 1953, and 1952* [1]

Market	Type of pool [2]	October			November		
		1954	1953	1952	1954	1953	1952
Northeastern markets:							
Boston [3]	M	65.3	62.9	66.3	72.9	63.5	69.4
Fall River [3]	H	122.6	107.0	103.4	134.4	104.8	105.3
Merrimack Valley [3]	M	100.1	102.3	101.0	104.9	99.5	104.0
Springfield [3]	M	89.0	94.1	93.7	94.3	89.9	94.1
Worcester [3]	M	112.0	116.9	110.1	117.7	112.4	109.7
Philadelphia [3]	H	80.7	88.9	86.4	81.2	85.2	87.8
New York [4]	M	67.8	61.9	70.9	70.0	72.2	73.9
Chicago area markets:							
Chicago [5]	M	76.4	74.3	83.4	73.9	64.4	76.6
Cedar Rapids-Iowa City	M	73.4	78.2	90.6	71.0	70.3	86.0
Dubuque	M	77.3	75.3	82.3	71.3	64.3	72.6
Milwaukee	H	92.9	93.6	98.0	94.0	84.7	92.6
Quad Cities	M	72.8	75.0	92.5	72.5	70.3	86.6
Rockford-Freeport	M	99.4	91.2	94.9	99.3	86.1	86.9
South Bend-LaPorte	M	80.5	90.2	101.7	85.1	85.9	100.3
Lake Erie markets:							
Detroit [3]	M	74.9	77.9	79.7	76.0	74.8	77.9
Cleveland [3]	M	73.2	77.1	75.0	72.2	74.4	76.3
Fort Wayne	M	65.2	78.0	70.1	72.1	75.5	74.6
Lima [6 7]	H	75.0	81.9	100.3	(4)	74.8	96.2
Muskegon	M	80.1	83.4	(8)	84.0	77.8	(8)
Stark County	M	82.2	87.7	(8)	83.4	81.9	(8)
Toledo	H	103.4	106.1	120.7	98.2	96.6	111.9
Southern Ohio markets:							
Cincinnati [5]	M	91.0	98.9	89.6	89.6	91.5	91.5
Columbus [5]	M	88.0	92.5	93.2	93.2	83.3	89.6
Dayton-Springfield	M	82.7	92.1	85.5	84.5	84.3	87.0
Tri-State [6 7]	H	97.0	112.1	114.8	105.5	108.0	114.0
Minnesota-W, Iowa-South Dakota markets:							
Minneapolis-St. Paul	H	93.6	84.7	89.7	87.6	72.4	78.2
Duluth-Superior	M	60.5	63.8	66.8	58.8	61.3	70.4
Omaha-Lincoln-Council Bluffs	M	89.9	90.5	115.0	87.4	82.8	106.4
Sioux City	M	89.6	86.6	100.7	89.5	78.0	92.8
Sioux Falls-Mitchell	M	101.3	94.8	114.8	105.0	92.2	100.9
Missouri-Kansas markets:							
St. Louis [7]	M	101.2	107.2	121.3	97.3	96.9	114.1
Neosho Valley	M	77.8	76.7	87.5	70.0	65.7	82.7
Kansas City	M	80.4	82.9	90.3	74.4	72.2	85.4
Topeka	M	88.6	94.5	103.3	78.0	78.3	89.9
Wichita	M	75.6	78.6	83.5	75.4	64.9	76.0
Kentucky-Tennessee markets:							
Louisville	M	79.9	91.2	91.9	79.2	84.1	89.6
Knoxville [6]	M	106.8	102.0	100.6	110.8	95.7	102.9
Memphis [6]	H	102.9	107.2	102.9	102.4	96.7	98.5
Nashville	M	89.2	99.7	94.1	82.9	89.5	90.8
Paducah	M	99.5	137.9	139.8	101.2	129.1	150.9
Oklahoma-Arkansas markets:							
Oklahoma	M	83.7	83.0	100.7	83.9	76.2	90.9
Tulsa-Muskogee	M	84.8	84.5	99.3	84.3	75.7	93.8
Fort Smith	M	101.1	89.6	99.3	104.7	80.8	95.6
Texas markets:							
North Texas	M	94.2	93.9	104.4	95.3	86.6	96.8
Central-west Texas [6]	M	123.1	104.6	(8)	121.4	105.6	(8)
San Antonio	M	125.1	111.2	126.7	128.1	105.5	126.7
Other markets:							
New Orleans	H	77.0	86.5	92.0	75.0	81.2	88.6
Puget Sound	M	62.7	72.6	87.6	69.1	70.3	85.1

[1] Percentages represent that proportion of producer receipts (at average butterfat test or lower) which was needed for fluid uses required to be supplied from approved sources. For all markets other than those noted, fluid use includes fluid whole and skim milk items and sweet and sour cream sold within and outside of the marketing area. Sales data generally exclude sales by handlers subject to another order. New order markets on which utilization data are not available for all months have been excluded.

[2] M=marketwide pool; H=individual handler pool.

[3] Fluid use includes whole and skim milk items only.

[4] Fluid use includes all whole milk sold and cream shipped into the marketing area. Does not include skim items.

[5] Includes, cream used for ice cream.

[6] Marketing area changes: Central-west Texas, November 1, 1953; Knoxville, Sept. 1, 1954; Lima, Nov. 1, 1954 (later data not comparable); Memphis, June 1, 1954; Tri-State, Nov. 1, 1953.

[7] Changed type of pool: Lima, from market wide to individual handler; St. Louis, from individual handler to marketwide; Tri-State, from marketwide to individual handler.

[8] Order not in effect.

Causes of variations in utilization

One fairly obvious cause of variation in the utilization among cities shown in table 18 is that the month of low utilization may vary among cities, particularly among cities in different sections of the country.

A second cause is the fact that surplus milk tends to flow to marketwide pools and be relatively low in markets having individual handler pools. The marketwide pools in table 16 averaged 86.3 percent utilization in October 1954 as compared with 93.9 percent for individual handler pools.

In general, but particularly in the New York and Chicago markets, producers and plants find little difficulty in entering the market pool. There is a tendency for some plants to seek pool status in order to receive equalization payments. This tendency is present regardless of the level of Class I or blend prices. In individual handler pools, on the other hand, plants would tend to lose their more desirable producers if their blend price fell much below the blend paid by other handlers. Therefore, they tend to restrict their purchases of milk from producers. During months of low production they rely more heavily on "emergency" sources than do plants under marketwide pools. Plants in secondary unregulated markets which buy on a flat price basis tend to follow the same procurement policy as plants under individual-handler pools.

Because of the opposite tendencies in the two types of pools, the one tending to attract and the other to repel supplies in excess of Class I sales, marketwide pools tend to carry the bulk of the surplus for neighboring handler pools and flat-price markets during the flush months, and to experience an increase in the amount of outside Class I sales or a decline in the number of pool plants during the deficit months.

New York is an excellent example of the relationship between a marketwide pool and adjacent markets which do not have marketwide equalization. Northern New Jersey and New York State secondary markets (including Auburn, Utica-Rome, the Middle-Hudson area, Ithaca, Binghamton, etc.) may buy Class I–C milk from the New York pool at 20 cents per hundred pounds over the blend price. Sales in this class are higher in the months of low production, as would be expected if outside markets were buying "short" from regular sources and supplementing their supplies with purchases from the New York pool when necessary (table 19).

Connecticut, Rhode Island, and Massachusetts markets also draw on New York pool plants in months of low production. In February 1954 the classification of sales to these markets was changed from I–C to I–A. A considerable number of plants were withdrawn from the pool in July 1954, at the beginning of the next season of rising sales to these markets. Many of the plants withdrawn were units of chains of plants, enabling sales from the pool and nonpool units to be arranged in a way that left a disproportionate share of the seasonal surplus in the pool plants.

The Philadelphia market also draws on New York pool plants for supplemental supplies in the months of low production. These sales have been classified I–A.

Dealers in the markets listed above (excluding Rhode Island and Massachusetts) purchased 3,192,000,000 pounds of milk directly from producers in 1953. Their sales for fluid purposes were 3,590,000,000 pounds (*19*, *49*, *79*). Had these markets purchased enough milk directly from producers to furnish their own operating and seasonal reserves, even to the extent of 20 percent over the year, they would have received 4,308,000,000 pounds. This figure is 1,116,000,000 pounds in excess of their actual receipts. The major part of this milk was carried in the New York pool.

TABLE 19.—*Sales of milk outside the marketing area, New York marketing area, Order No. 27, January 1952–December 1954*

[Thousand pounds]

Month	1952	1953	1954	Month	1952	1953	1954
January	40,889	39,589	37,469	August	60,099	67,277	70,416
February	33,833	31,220	29,501	September	53,864	67,428	56,900
March	32,591	32,348	29,185	October	56,354	64,007	61,443
April	28,984	30,529	27,890	November	55,922	58,935	57,197
May	27,108	29,815	25,255	December	47,136	45,521	50,714
June	33,114	35,719	30,525				
July	62,203	60,240	61,135	Total	532,097	562,628	537,630

A similar situation exists in Boston, which carries reserves for secondary markets through much of New England, and Chicago, which is drawn on by markets throughout the Midwest and South (tables 3 and 4).

Because of the complex interrelationships among markets having marketwide pools and markets of other types, the concept of adequate supply as a criterion of pricing policy is not simple to apply. Relatively low utilization percentages in such markets as New York, Chicago, and Boston must be considered in conjunction with the utilization in neighboring markets. Nevertheless, if a market with low utilization and low blend prices shows increases in production exceeding increases in sales, there is reason to question whether the level of prices can be justified as being necessary for assuring an adequate supply.

The Federal Milk Order Study Committee compiled the volume of Class I milk in 11 major northeastern markets and total milk production in the North Atlantic States for the years 1940 to 1953. They used the data to determine trends in Class I usage, compared with the production trend (table 20) (*28*). These 11 markets include the largest in Northeastern United States. Their Class I sales represent about 40 percent of the milk produced in the North Atlantic States, and probably give a fairly reliable index of the major changes in the Class I volume of the area.

The table shows that Class I sales rose rapidly from 1940 to 1946, fell slightly and remained stable at about 33 percent increase until 1950. Production rose and fell within a range of 8 percent until 1948 but since then has risen at a slightly more rapid rate than Class I sales. In spite of this rise in production, the proportion of milk in the area used in manufacturing has changed very little in the post-World War II period (appendix table 42).

Duluth-Superior has the lowest percentage of utilization among the Federal order markets. In 1950, this market was losing producers and the average delivery per farm was falling. The price of milk was raised by an amendment to the order. In July 1953–June 1954, the formula resulted in a Class I price 63 cents higher, and a blend price 36 cents higher than the prices expected on the basis of distance from surplus producing areas.

Freedom of entry

A supply may be considered adequate if local sources either provide enough milk at all seasons, or if they can be readily supplemented by outside sources part of the time. In either case, statistics of utilization are meaningless as a criterion of pricing policy if the order were to restrict the supply. Thus, it becomes appropriate to consider how and to what extent the orders may affect accretions to the market supply in the form of increased production of old producers, the addition of new producers at old plants, or the entry of new plants. To do this a number of features of the Agricultural Marketing Agreements Act of 1937 and of the Federal orders must be considered: Definitions of the terms marketing area, handler, producer, and pool plant; and the nature and effects of performance requirements, compensatory payments, allocation provisions, base-excess plans, new producer provisions, and location differentials.

Order Definitions

It has been customary for the scope of Federal milk orders to be limited by defining marketing areas. A marketing area usually consists of one or more cities and the more densely populated areas surrounding them. A handler who is a person regulated by an order, is for the most part defined as a person who operates either a plant from which milk is distributed in the marketing area, or a receiving station for such a plant.

TABLE 20.—*Indexes of Class I sales, 11 northeastern markets, and total milk production on farms, 9 Northeastern States, 1940–53 (1940=100)*

Year	Class I (11 markets)[1]	Total milk production [2]	Year	Class I (11 markets)[1]	Total milk production [2]
		Million pounds			*Million pounds*
1940	100	100	1947	135	107
1941	105	103	1948	132	105
1942	112	105	1949	133	112
1943	121	102	1950	133	114
1944	126	104	1951	135	113
1945	131	108	1952	138	115
1946	137	104	1953	139	120

[1] The 11 markets include Boston, Rhode Island, Connecticut, New York City, North Jersey, South Jersey, Philadelphia, Baltimore, Pittsburgh (Allegheny County), Buffalo (Niagara Frontier marketing area), and Rochester. The Class I sales were obtained from the respective milk control agencies, except for Pittsburgh. For that market, they were compiled from publications and reports of the Department of Agricultural Economics and Rural Sociology, Pennsylvania State University.

[2] Total for 6 New England and 3 Middle Atlantic States.

A producer, the dairy farmer to whom the handler must pay the prices fixed by an order, in the early days of the order program included any dairy farmer holding a local health department permit to sell milk in the marketing area. More recently, a further requirement is commonly added, that a farmer to be a producer must also deliver his milk to a pool plant.[22] This change became necessary where the health departments of given regulated markets began to inspect milk plants and dairy farms which in fact were principally engaged in supplying unregulated markets, or other regulated markets having individual handler pools.

The crucial feature of this development is the power of the plant operator to decide and bring about changes that are only slightly, if at all, related to producers' unprompted reactions to the prices they receive. As has been noted, individual dealer pools tend to restrict "regular" supplies, since dealers have a strong incentive to limit their purchases. Each dealer tends to keep his purchases to a minimum so his sales of Class I milk will be the largest possible proportion of his total sales, and his price to producers correspondingly high. This gives him a greater opportunity to select producers of his choice for volume and evenness of production, milk quality, location or other desirable characteristics. Smaller dealers, particularly, lacking facilities to handle surplus milk efficiently, find dealer pools to be advantageous.

Federal orders have used marketwide pools more than individual handler pools. There were 42 markets with marketwide pools, and 14 with individual handler pools as of April 1, 1955. The Marketing Agreements Act itself tends to favor marketwide pools, since orders with such pools require approval by only two-thirds of the producers, while orders with individual handler pools require approval by three-fourths of the producers.

Marketwide pools, on the other hand, tend to attract surpluses, especially if the manufacturing-use class prices allow wide handling margins. In such circumstances, dealers tend to accept willingly any producer who offers to sell milk. It has been the experience, especially in the northeast, that markets with marketwide pools become the reservoir from which markets with dealer pools draw supplies in the season of low production.

A plant engaged in supplying short-season requirements of dealer-pool markets may find that these outlets alone enable it to pay producers as much as the marketwide pool blend price. If, in addition, this plant can become a part of the marketwide pool without any obligation to supply the market's fluid milk needs, it can draw equalization payments, possibly exceeding its payments into the pool on account of its outside sales during the short season.

There is another type of case, involving a plant possessing extensive manufacturing facilities and located in the milkshed of a market having a marketwide pool. Such a plant may persuade its producers to meet the health standards in order to qualify the plant for the pool—possibly exerting unusual efforts on nonprice methods of milk procurement to influence producers to do so. The plant's objective,

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[22] See below, p. 81.

and opportunity for profit, lies in being able to buy its milk at the manufacturing class price, and to pay its producers the market blend price. In pricing the manufacturing class it may not be possible to set a price high enough to discourage a specialized manufacturing plant of this type from entering the pool, but low enough to assure that other handlers will not reject seasonally surplus milk.

The two types of plants just discussed have little or no interest in supplying the fluid milk needs of the market in which they are pooled. Consequently, milk distributors in that market may find themselves unable to buy enough milk for their Class I requirements during the low production season. This results in pressure to raise the Class I prices, even though the supply may be adequate as measured by the ratio of pool receipts to Class I sales. Marketwide pools, therefore, are under compulsion to adopt "performance requirements" or some other device that will enable them to attract a sufficient supply of milk while ensuring that the plants in the pool will supply milk to the market.

A pool plant is one which meets specified performance requirements, usually in addition to having approval of health authorities for the marketing area.

Performance Requirements

The philosophy behind the use of performance requirements in the Order program was stated as follows in the final decision of the Secretary, dated July 10, 1953, that applied to the St. Louis Order (*68*):

> Since reserve milk is an essential part of any fluid milk business there will always be some excess milk in the plants of handlers supplying other markets. * * * Plants selling primarily to other markets or * * * shipping milk on an opportunity basis to any market where supplies happen to be short, do not represent reliable sources of milk. * * * If such plants were allowed to sell a token quantity of milk in the * * * marketing area whenever their Class I sales were low, and then withdraw as their Class I sales were high, the results would be that in-and-out handlers would be able to gain advantage in paying producers. * * * When his utilization was largely in Class I he might retain a larger part of the proceeds from his sales, since he would be selling at Class I prices and paying producers at a competitive blend price. Whenever his utilization fell below average, he could fall back on to the pool and draw equalization payments to maintain his paying price to producers. The * * * market would have no compensating gain from the payment of equalization to such a handler * * *.

Assuming that classified pricing and pooling of milk are necessary and desirable, performance requirements also are justified on the basis that they are necessary regulations to maintain market pools. Granting their necessity, there are, nevertheless, circumstances under which performance requirements may go beyond offsetting the tendency of the equalization feature of marketwide pools to attract pool-riding plants.

It should be noted that any restrictive effect of performance requirements is on the movement of milk into and merchandising of milk in Federal markets by nonpool plants rather than on the sale of milk by individual producers. Any individual producer who can (a) find a pool plant to buy his milk, and (b) obtain health department approval meets performance standards in any Federal market.

Two kinds of performance requirements can be recognized: (1) Those that require that a plant selling any milk for bottling or dis-

tributing milk in the market be pooled, and (2) those that require that plants selling a specified proportion of their volume in the market be pooled.

Upon initiation of an order, a handler selling part of a plant's milk for fluid use in the order market and part in unregulated markets must decide whether his unregulated resale outlets will pay him prices that allow him to pay producers the order prices. If they will, he has no worries—he can afford to meet performance requirements and keep both outlets. If, however, the plant's unregulated markets have resale prices below those in the regulated market, then Class I prices in the order market may be above those the dealer can afford to pay for sales in the unregulated outlets. In such a case the handler will have to decide whether to drop his nonregulated outlets or stay out of the regulated market. Instances have occurred where the handler purchased a second plant so that his sales in the regulated area could be made from one and his outside sales from the other. Cases of this kind alter market patterns, restrict merchandising, and may cause lowered distribution efficiency by contracting or limiting natural distribution areas, and preventing the development of large-volume centralized processing and bottling plants that gain economies of scale. Producers may be benefitted, of course, to the extent that those supplying the regulated plant receive higher class prices or a more complete accounting of milk utilization.

Because of the growth of outer-market distribution (see above) it is almost impossible to establish a marketing area in which some distributor will not also have outside sales. The necessity of forcing a choice on some distributors appears practically unavoidable. The alternatives by which this necessity could be avoided appear to be either not to regulate milk prices at all, to regulate nearly the entire country, or to establish a separate class with a lower price for milk sold outside the marketing area. Establishing a lower price for milk sold outside the market would discriminate against consumers within the market, who would have to buy milk for which producers were paid the higher price. Administratively, it would be difficult to find the price which would be appropriate for outside sales, while the price set by the order would tend to govern all purchases from the producers in the unregulated market, especially if set too low. In the early years of Federal regulation some markets had special provisions for outside sales. These were gradually abandoned, for the reasons stated.[23] The other alternatives—no regulation or countrywide regulation—are probably more drastic than the problem warrants, even though it may be of considerable concern to the distributors involved.

The requirement that a plant sell some milk in the marketing area in order to become regulated (and entitled to participate in the marketwide pool) is ineffectual in screening out plants whose interest in the pool has little or nothing to do with supplying the market's requirements for fluid milk, or with the levels of prices established by the order. Consequently, some orders have adopted requirements

[23] Only the New York order now has such a provision. Its scope was narrowed in February 1954 and much thought has been given to possible remedies for the situation which has seemed to make its use necessary.

that a plant sell a specified percentage of its milk in the market in order to qualify. The extent to which entry is thus restricted is calculated to differentiate between plants which have a primary interest in supplying the Class I needs of the given market and plants which have other primary interests. The terms of the performance standards thus vary from order to order depending on local circumstances.

The performance standard which requires the sale of a specified percentage of its milk to qualify for participation also provides an escape for many plants which prefer not to become regulated. This includes cases in which accidental sales might bring the plant under regulation. It also includes cases in which a small but regular volume of business is done in the marketing area. In cases of the latter type, it becomes unnecessary for the plant to make a choice and confine its business exclusively to one or the other market.

The New York and Chicago orders provide that a plant may acquire pool status upon a showing that it has an obligation to deliver milk for Class I use in the marketing area if called upon, or if it certifies to the market administrator its willingness and ability to do so.

A summary of the definitions of pool plants in Federal orders is presented in table 21.

Whether or not the orders contain producer and pool plant standards, they may provide for certain other kinds of unpriced milk. The irregular or short-term emergency supplies needed to supplement the regular supplies of milk during deficit periods, and milk, not necessarily graded, brought into the market for use in manufactured products. The latter category may include milk from producers who have been de-graded by the health department.

All of these kinds of unpriced milk—milk for which handlers were not required to pay producers the price established by the order—could displace regulated milk if it were wholly free of restraint. To avoid this contingency, orders contain two types of measures which are intended to prevent unpriced milk from having any competitive advantage over pool milk. These measures are commonly known as "allocation requirements" and "compensatory payments."

Allocation Requirements

All orders provide that, in classifying a handler's receipts of milk from producers and country plants, unpriced milk shall be deducted in series beginning with the lowest-priced class. These terms are called allocation requirements. They mean simply that all pool milk must be classified into the higher-use classes before outside source milk. Only if insufficient pool milk is received to fill the higher classes can outside source milk enter them. Thus, if a handler gets unpriced milk, he assigns it to his lower usages, usually Class II, gives pool milk priority in the Class I usages, and, to the extent that pool milk is given the higher classification, must pay into the pool on the unpriced milk the difference between the Class II and the Class I prices.

Some, but not all, orders provide that allocation requirements be relaxed during specified months or under certain conditions when milk is in short supply. The allocation requirements which do not include this provision may burden handlers unnecessarily under certain con-

ditions: (a) When the handler must obtain outside source milk for Class I needs on a specific day, although over the pooling period he receives more pool milk than he needs for Class I usage; (b) in periods of short supply when the supply of pool milk is below, roughly, 107 percent to 115 percent of Class I needs. At such times a handler's arrangements for outside source shipments of milk may be presumed to be for the purpose of insuring sufficient supplies for Class I needs, and not solely to escape paying the minimum prices established by the order.

Where an individual dealer has only Class I sales and receives unpriced milk, allocation requirements are ineffectual in maintaining his product costs equal to those of other handlers.[24] For this reason, in a number of orders, a system of compensatory payments has been included to supplement allocation requirements.

Compensatory Payments

Compensatory payments are those sums of money that must be paid into the market pool for that portion of the unregulated milk used in specified classes. The uses specified usually are those for which milk must meet health department approval. The purpose of the payment is to afford a means of integrating into the classification and pooling plans of regulated markets milk which is otherwise unregulated.

Compensatory payments exist in 38 of the 42 orders which provide for marketwide pools. Handler-pool markets do not have compensatory payment provisions, mainly because such markets have no equalization payments to attract unneeded plants.

The objective in selecting a basis for the rate of compensatory payment is to prevent the undermining of the classification and pooling plan in the market without unnecessarily discriminating against the unregulated milk. Usually, the rate of the compensatory payment is calculated from the difference between the Class I price and some other price so chosen as to make it reasonably certain that the non-pool milk would not cost the distributor less than the Class I price under the market order.

One method of arriving at the rate of compensatory payments would be to find the unit cost of each non-pool shipment and set a rate which would equalize that cost with the cost of pool milk to the receiving handler. In practice, such costs as the market administrator might determine on the basis of invoices and payments might differ substantially from the real economic value of the milk at the point of first receipt from dairy farmers. Many handlers operate both regulated and unregulated plants. In the case of movements between such plants, the billing and payment represents a mere bookkeeping transaction. It might be adjusted to avoid any compensatory payment without affecting company profits. Unaffiliated plants, by means of tie-in transactions or other arrangements, could adjust billing prices

[24] The Federal Milk Order Study Committee reports an administrative difficulty in reclassifying milk received as cream (*28*, p. 19).

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TABLE 21.—*Pool plant definitions, 56 Federal order markets, April 1955* [1]

Federal order market	Type of pool	Plants from which any milk is distributed on routes in marketing area	Plants in marketing area from which any milk is distributed on routes in marketing area	Plants from which specified minimum percentages, or amounts, of receipts are sold for fluid use in marketing area [2]	Plants from which specified minimum percentages, or amounts, of receipts are sold for fluid use in marketing areas during specified high and low production months [3]	Plants in pool, as of a specified date	Plants willing and able to deliver specified percentages of milk in specified utilization classes
Akron	Market		X	X			
Appalachian	Handler			X			
Austin-Waco	do			X	X		
Black Hills	Market			X			
Boston	do			X	X		
Cedar Rapids	do	X					
Central Mississippi	Handler			X	X		
Central West Texas	Market	X		X	X		
Chicago	do	X			X		X
Cincinnati	do		X	X	X		
Cleveland	do			X	X		
Columbus	do	X					
Dayton-Springfield	do	X					
Detroit	do	X			X		
Dubuque	do	X					
Duluth-Superior	do	X					
Fall River	Handler	X					
Fort Smith	Market	X					
Fort Wayne	do			X	X		
Kansas City	do			X	X		
Knoxville	do			X	X		
Lima	Handler	X					
Louisville	Market			X	X		
Memphis	Handler			X	X		
Merrimack Valley	Market			X	X		
Milwaukee	Handler	X					
Minneapolis-St. Paul	do	X			X		
Muskegon	Market			X			
Nashville	Handler	X			X		
Neosho Valley	Market			X			
New Orleans	Handler	X			X		
New York	Market				X	X	X
North Texas	do	X		X	X		
Oklahoma City	do	X					

Omaha-Lincoln-Council Bluffs	do	X					
Ozarks	do			X			
Paducah	do			X	X		
Philadelphia	Handler	X		X	X		
Puget Sound	Market		X		X		
Quad Cities	do	X					
Rockford-Freeport	do	X					
St. Louis	do			X	X		
San Antonio	do			X			
Shreveport	Handler			X	X		
Sioux City	Market			X			
Sioux Falls	do	X					
South Bend-LaPorte	do	X					
Southwest Kansas	do	X					
Springfield, Mass	do			X	X		
Stark County	do		X	X			
Toledo	Handler	X			X		
Topeka	Market				X		
Tri-State	Handler	X		X			
Tulsa-Muskogee	Market	X					
Wichita	do				X		
Worcester	do			X	X		
Total 56 markets		27	4	29	29	1	2

[1] These requirements have been simplified and abridged. Requirements having to do with health certification, cooperative plant ownership, distinctions between county and city plants, etc. have been omitted.

[2] The minimum requirements vary widely among markets.

[3] Some orders specify minimum percentage, or minimum amount, for both high and low production months. Others grant automatic pool status in high production months if low production month deliveries meet requirements.

for the mutual benefit of both concerns. Such practices are difficult to detect and difficult or impossible to regulate.

In view of practical difficulties in determining the real economic value of nonpool milk, shipment by shipment, a more general measure of value is used to calculate the rate of payment. The price most frequently used represents the value of milk in manufacture of dairy products. This is based on the reasoning that the alternative use for an increment of milk seeking to enter the market must be a manufacturing use. In some circumstances, as during deficit months, other measures of alternative use value may be applicable, as for example, the blend price in the regulated market. In periods of extreme shortage the alternative use value of unregulated milk may be so high that no compensatory payment would be warranted (table 22).

Some Federal orders recognize these conditions by using the difference between the blend price and the Class I or II price to decide the compensatory payment rate during deficit months. Other orders remove the compensatory payment provisions when milk supplies are short.

Compensatory payments may be required for shipments of milk from a handler who is regulated under another order. These may be decided by the difference between the class prices in the two orders since, being subject to regulation in the market in which it originates, the cost of the milk can be determined by the administrator in the receiving market.

While the intent of compensatory payments is to "assure that regulated distributors may not secure unregulated milk at a cost advantage over regulated milk," (*41*, p. 14), the procedure followed in determining the rate of payment may result in some unregulated milk costing considerably more than regulated milk. One situation, already discussed, is where the value of the milk at the unregulated plant is higher than that allowed for in the formula for computing the rate of payment. Another is that the cost of delivering the milk to the regulated plant may not be allowed for. In some instances, this delivery or transportation cost is offset, approximately, by applying location adjustments that are a part of the order.

To illustrate, we may consider a handler buying milk from a nonpool plant 600 miles distant. The price at the nonpool plant may be the going price of condensery milk, say, $3 per hundredweight (normally the selling plant would receive in addition a handling charge).

The cost of shipping this milk 600 miles might be $1.20 per hundredweight. A compensatory payment levied at the difference between the condensery price and the Class I price, f. o. b. the market might be, say, $2 ($5 less $3), making the total cost to the handler $6.20. If the class I price were adjusted by a differential appropriate for the location of the plant at which the milk was first received from producers, the compensatory payment would be much reduced, say to $1 (class I price f. o. b. market of $5 less location differential for 600-mile zone of $1, less condensery price of $3). The total cost to the handler then would be $5.20—not less than the cost of class I milk purchased from local producers, nor nearly so much above the latter as in the first example.

TABLE 22.—*Types of prices subtracted from primary class price to determine rate of compensatory payments for other source milk allocated to primary classes, 56 Federal order markets, April 1955*

Market	Type of pool	Types of prices for other source milk originating from—			
		Regulated markets and sold as—		Unregulated markets and sold as—	
		Route milk	Bulk milk	Route milk	Bulk milk
Akron	Market				Manufacturing
Appalachian	Handler				
Austin-Waco	do				
Black Hills	Market			(1)	Manufacturing [2]
Boston [3]	do	Manufacturing [4]	Manufacturing [5 6]	Manufacturing	Manufacturing
Cedar Rapids	do	Class I [5]			
Central Mississippi	Handler				
Central west Texas	Market			(7)	
Chicago [3]	do				Manufacturing [8]
Cincinnati [3]	do			Manufacturing	Manufacturing [9]
Cleveland	do			Manufacturing	Manufacturing
Columbus	do				
Dayton-Springfield	do				Manufacturing
Detroit	do				Manufacturing
Dubuque	do	Class I [5]			
Duluth-Superior	do				Manufacturing
Fall River	Handler				
Fort Smith [3]	Market	Class I [5]			
Fort Wayne	do			Manufacturing	Manufacturing
Kansas City [3]	do	Class I [5]	Manufacturing	Manufacturing	Manufacturing
Knoxville	do			Manufacturing [2]	Manufacturing [2]
Lima	Handler				
Louisville [3]	Market			Manufacturing [2]	Manufacturing [2]
Memphis	Handler				
Merrimack Valley [3]	Market	Manufacturing	Manufacturing [10]	Manufacturing	Manufacturing
Milwaukee	Handler				
Minneapolis-St. Paul	do				
Muskegon	Market			Blend	
Nashville	Handler				
Neosho Valley	Market	Class I [5]		Manufacturing	
New Orleans	Handler				
New York [3]	Market	Class I or manufacturing [11]	Class I or manufacturing [5 11]	Manufacturing [12]	Manufacturing [12]
North Texas	do	Class I [5]			
Oklahoma City	do	do			
Omaha-Council Bluffs	do	do			Manufacturing [13]
Ozark	do			Manufacturing	Manufacturing

Market	Type of pool	Types of prices for other source milk originating from—			
		Regulated markets and sold as—		Unregulated markets and sold as—	
		Route milk	Bulk milk	Route milk	Bulk milk
Paducah	do			Manufacturing [2]	Manufacturing [2]
Philadelphia	Handler				
Puget Sound [3]	Market			Manufacturing	Manufacturing
Quad Cities	do	Other order class			
Rockford-Freeport	do				
St. Louis [3]	do			Manufacturing [2]	Manufacturing.[2]
San Antonio [3]	do			Manufacturing [2]	Manufacturing.[2]
Shreveport	Handler				
Sioux City	Market			Manufacturing [2]	Manufacturing.[2]
Sioux Falls-Mitchell	do			Manufacturing	Manufacturing.
South Bend-La Porte	do				
Southwest Kansas	do				
Springfield, Mass.[3]	do	Manufacturing [4]	Manufacturing [10]	Manufacturing	Manufacturing.
Stark County [3]	do	Class I [5]	Class I [5]	Manufacturing	Manufacturing.
Toledo	Handler				
Topeka	Market	Class I [5]	Manufacturing	(14)	Manufacturing.
Tri-State	Handler				
Tulsa-Muskogee	Market	Class I [5]			
Wichita	do	do	Manufacturing		Manufacturing.
Worcester [3]	do	Manufacturing [4]	Manufacturing [10]	Manufacturing	Manufacturing.
Total, 56 markets					

[1] Average value of pool milk less prices paid unregulated farmer or Class I price less manufacturing price, whichever is less.
[2] Blend price in specified deficit months; manufacturing in others.
[3] Allowance made for location differential.
[4] Plants in certain nearby regulated markets are not required to make compensatory payments.
[5] For the other regulated market.
[6] Lowest price at which milk is likely to be available. Does not apply on New York order Class I milk, or if declared emergency exists.
[7] Amount paid unregulated farmer.
[8] Difference between the price of the class in which other-source milk is used and the manufacturing price.
[9] Suspended when surplus is 10 percent or less.
[10] Difference in Class I prices for milk from certain northeast order markets.
[11] Depends on whether other orders authorize deduction from payment due other order producers.
[12] The manufacturing price used depends upon utilization of manufacturing milk in New York pool and shipping plant location.
[13] Suspended during declared emergency.
[14] Lesser of (a) difference between Class I and II prices, or (b) any plus amount resulting from: net pool obligations as a handler, minus gross payments to dairy farmers.

Location Differentials

Federal orders establish a minimum price at the plant where the milk is first received. In many of the larger markets most milk from farms is received at country plants located in the area of production. After cooling, the bulk milk is transported in tank cars or trucks from the country plants to the city processing plants.

In such markets the Federal orders provide location differentials below the established minimum price. These differentials reflect, not necessarily exactly, the cost of transporting bulk milk from any point within the supply area to the city processing plants. The purpose of the differentials is to make it possible for handlers to procure milk throughout the supply area at a delivered cost that is uniform with that of other handlers.

While location differentials are based mainly on the cost of transporting whole milk, other factors may be taken into account, such as convenience, availability, regularity, certainty or seasonal uniformity of supplies, existence of competing markets and the historical relationships of prices within the supply area.

The schedules of location differentials in some markets do not increase beyond a certain zone.

Leveling out the location differential at a specific zone results in higher costs of milk delivered to handlers from plants beyond that zone than from plants within the zone. Therefore such location differentials may burden the movement of milk from more distant producers or country plants.

When location differentials cover the regular supply area of Federal markets, the leveling out of differentials is not an important barrier to the movement of milk. However in periods of short supply, or in a growing market, location differentials extending indefinitely at a rate equivalent to transportation costs would facilitate the entrance of more distant milk into the market. Further, the use of such location differentials in connection with compensatory payments would result in more equitable charges for milk moving from more distant nonpool plants, than are possible under the present compensatory provisions for some markets.

Base—Excess Plans

Base-excess [25] payment plans are in operation in 24 Federal markets.[26]

The policy under Federal orders has been to use base-excess plans—"for promoting more even production throughout the year. It is not intended that any individual be discriminated against. Conversely it is not intended that any individual should receive any financial gain other than that which he might obtain through his own efforts in developing a production pattern more fitting to the needs of the market" (*66*). To this end, the base-excess plans in Federal orders provide that bases cannot be transferred except under certain restrictions, provisions allowing new producers to sell milk until they can

[25] Also called quota, base-rating, base-surplus plan.
[26] As of April 1955.

earn a base are liberal, and in most markets the base-excess provision operates only during the surplus months.

Rules for the bass-excess plan could be drawn so as to penalize severely any new producer. The rules adopted in the Federal order markets, as described above, enable new producers to enter the market on an equal basis with old producers under most circumstances.

New Producer Clause

The Marketing Agreements Act authorizes a provision in Federal orders requiring that a new producer's milk for payment purposes would be classed as manufacturing milk for a period of time, up to 3 months, before he could receive the full blend price from the pool.

This provision was never extensively invoked. Even when in operation it was not always effective as a restriction, because in periods of deficit supply, it was either suspended or handlers would pay new producers premiums to make up the difference between the manufacturing and blend price. Only the Duluth-Superior order still retains such a provision.

STATE MILK CONTROL LAWS

As of April 1955, 16 States had milk control laws.[27] Under these laws producer prices are fixed in all States and resale prices in 11 States.[28] State orders affect producer prices on about 20 billion pounds of milk. Over 50 million consumers use milk priced by State milk control agencies.

The laws contain a number of provisions needed to make the pricing powers effective: Licensing of distributors; bonding or other security to ensure payments to producers; auditing of producer payments; establishing fair trade practices, etc. (tables 23, 24).

The problems encountered by the States in fixing producer prices are in the main similar to the problems confronting Federal orders. There is one very important difference, in that the power of a State to fix prices to producers stops at its borders, owing to the commerce clause in the Federal Constitution. States, therefore, are handicapped in dealing with out-of-State milk. To overcome this difficulty, they have used a variety of expedients.

Primarily, milk control regulations which have tended to impede the movement of milk have been restrictions on the entry of new producers or of other-source milk, usually from other States, into the market, and the entry of new distributors into markets or the expansion of existing distributors into new markets. Resale pricing and regulations needed to make it effective have been the principal measures tending to restrict the adoption of innovations or new methods in distributing.

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[27] Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, Virginia, Georgia, Florida, Alabama, North Carolina, Montana, and California.

[28] Massachusetts, Connecticut, New Jersey, New York, and North Carolina fix producer prices only.

TABLE 23.—*Powers and requirements of State milk control agencies, April 1955*

State	Require license—			Power to—			
	Of producers	Of distributors	For specific markets or areas	Require bond	Investigate	Inspect and audit	Require records and periodic reports
Alabama	X	X	X	X	X	X	X
California		X		X	X	X	X
Connecticut		[1] X		X	X	X	X
Florida	X	X	X		X	X	X
Georgia	X	X	X	X	X	X	X
Maine		X			X	X	X
Massachusetts		X		[2]	X	X	X
Montana	X	[3] X	X		X	X	X
New Hampshire		X	X	[2]	X	X	X
New Jersey		X		[4]	X	X	X
New York		[5] X	X	X	X	X	X
North Carolina		X	X		X	X	X
Pennsylvania	[6]	[7] X		X	X	X	X
Rhode Island		X		[8]	X	X	X
Vermont		[9] X		[2]	X	[10]	X
Virginia		X	X		X	X	X

[1] Dealer may be exempted from license requirements if his daily sales are less than 10 quarts of milk or its equivalent.
[2] Bond not required under State Milk Control Act, but may be required under laws administered by State Department of Agriculture.
[3] Must have a separate license for each separate market and a separate license for each subdivision of industry in which he engages as producer, distributor, or producer-distributor. Does not apply to transactions among and between distributors.
[4] Bond not required under State Milk Control Act, but is required under laws administered by State Department of Agriculture.
[5] Distributor may be exempted from annual license requirement if he sells less than 3,000 pounds of milk in any one month or sells in any quantity in markets of less than 1,000 population.
[6] Producer-distributor must be licensed.
[7] No license required of dealers or handlers who purchase or handle less than 1,500 pounds of milk in any month, or of those selling milk in any quantity in markets of 1,000 population or less for local consumption.
[8] Bonding power has never been enforced
[9] Applies only to those dealers operating in regulated markets.
[10] Inspects but does not audit.

Prices to Producers

The laws of all the States recognize in principle that differences in supply-demand conditions between markets may justify pricing for specific markets or areas of production. Actually prices in some States are fixed at uniform or practically uniform levels throughout the State (table 24).

In larger States, at least, statewide pricing encounters difficulties because of important differences among various markets and production areas (*55*, pp. 24–25). Such factors as size of cities, difference in sanitary requirements, and the relationships of markets to supply areas, weigh against uniform pricing over an entire State. Further, pricing policies of smaller cities are influenced by prices and uses for milk in nearby larger markets in other States.

These considerations indicate that, even though production and distribution conditions are quite uniform over a State, supply areas are likely to be distorted by the initiation of uniform statewide pricing.

Defining market areas and milksheds

With or without uniform pricing over the State, it is usual for the States to establish marketing areas and milksheds, generally limiting the area within which producers or distributors may do business.

TABLE 24.—*Pricing practices of State milk control agencies, April 1955*

State	Producer pricing practices					Distributor pricing practices	
	Fix prices—		Price plans used	Establish marketwide equalization pool	Establish seasonal pricing plan	Fix resale prices	Establish or administer fair trade practices
	By areas or markets	Prices same in all areas					
Alabama	Minimum and maximum [1]	(2)	Class		Base surplus	Minimum and maximum	X
California	Minimum		Class	(3)	(4)	Minimum	X
Connecticut	Minimum [5]		Class [6]		Fall premium plan		X
Florida	X	(2)	Class			Minimum [7]	X
Georgia	Minimum and maximum [8]		Class		Base surplus	Minimum and maximum [8]	X
Maine	Minimum		Flat or class		Base surplus	Minimum	X
Massachusetts	Minimum		Class	(9)	(10)	(11)	X
Montana	Minimum		Class			Minimum	X
New Hampshire	Minimum		Class		(12)	Minimum	X
New Jersey	(13)	X	Class [14]			(15)	X
New York	Minimum		Class	X	Fall premium plan		X
North Carolina	Minimum	X	Class		Base surplus		X
Pennsylvania	Minimum		Class [16]			Minimum [17]	X
Rhode Island	Minimum		Class	X	Base surplus	Minimum	X
Vermont	Minimum, maximum, or both.	(18)	Flat or class			Minimum and maximum	X
Virginia	Minimum [19]		Class	(20)	Base surplus	Minimum [19]	X

[1] Board has not exercised authority to fix maximum prices.
[2] Slight variation among areas.
[3] Although law authorizes market equalization pools, none are in operation.
[4] Law does not specifically authorize seasonal pricing plan. Such a plan is, however, in effect in one marketing area.
[5] Fixing of producer prices mandatory only under certain conditions.
[6] Although milk control law would seem to allow no alternative to classified price plan, dealers in some instances—i. e., those in smaller markets who handle little or no surplus milk—are required to pay a flat price. Also, each dealer must pay an additional amount to those producers from whom milk is purchased for sale as Grade A.
[7] Required to fix minimum resale prices; may fix maximum.
[8] Although the Georgia Board has power to fix minimum and maximum prices, Georgia price orders have provided only maximum prices.
[9] Only in New Bedford.
[10] In certain areas only.
[11] Under certain conditions may fix minimum resale prices.
[12] Generally follow same seasonal changes as established for Class I prices in New England Federal order markets.
[13] Exercise of price-fixing authority is permissive.
[14] In some areas, producers are paid bonuses for low bacteria counts.
[15] Resale price fixing is permissive. As of April 1955, only producer prices were fixed.
[16] Dealer must pay a premium, the amount of which varies in accordance with the butterfat content of the milk, to those producers from whom milk is purchased for sale as Grade A.
[17] Fixing of minimum prices mandatory under the order; fixing of maximum prices is permissive.
[18] One market has producer prices above the statewide level.
[19] Price-fixing authority appears to be permissive. The control agency interprets the law as authorizing the fixing of both minimum and maximum prices, but fixes minimum prices only.
[20] Only in Richmond area.

Changing demand or supply conditions, changing technology and changing attitude of health departments can raise problems of defining or adjusting the definition of marketing areas.

"The problem of defining marketing areas and adjusting them as conditions change has been accentuated by some recent developments. Increased mechanization of dairy plants, more extensive use of paper containers in the place of bottles and improvements in transportation have worked in the direction of larger pasteurization plants and more extensive distribution areas. There has also been a marked tendency toward the weakening or abolition of health department barriers, which previously made it necessary for each market to be supplied by local plants and from a limited nearby production area" (*55*, pp. 25–26).

State milk control agencies have a further problem in defining marketing areas, in that their authority to fix producer prices ends at their State lines. Thus, when milk is available in part of a milkshed in other States, at prices below the minimum price fixed under the market order, distributors have an incentive to buy more milk from the out-of-State part of the shed and less from the in-State part.

Other problems of maintaining distinct and separate marketing areas are discussed below under restrictions on the entry of producers and distributors.

Classified pricing

The use of classified price plans is authorized or required by all 16 State control laws and are in use in 15 States. Vermont's milk control orders establish a flat price, regardless of use, related directly to the Boston uniform price. In certain markets or under certain conditions, dealers are required, or permitted, to pay a flat price (table 23). The number of classes and the milk items included in the various classes vary considerably among States.

The section of this report which analyzes producer prices shows the relation between distance from the midwestern surplus producing areas and Class I prices in 143 markets.[29] Forty-seven markets had Class I prices more than 25 cents per hundred pounds of milk above the regression line (the amount that represents the average relationship of price to distance from Eau Claire, Wis.). Twenty-nine of these 47 markets were under State milk control; 6 under Federal orders, and 12 were not controlled.

Of the 40 markets with class I prices more than 25 cents per hundred pounds of milk below the regression line, 8 were under State milk controls; 16 under Federal orders; and 16 were not controlled.

This analysis indicates that in many markets under State milk control class I prices are higher than the cost of potential supplies from surplus areas.

Distributors who were interviewed in some markets under State milk control stated that milk that would meet sanitary requirements was available at estimated prices ranging from 20 cents per hundred

[29] Average Class I prices, July 1953 to June 1954. West coast prices were not used in this analysis.

to $1 per hundred below class I prices fixed under State controls.[30] Dealers in other markets were satisfied with the producer prices established by the State control agency.

To a considerable degree, the State milk control programs have been regarded as a means of improving the farmer's economic condition. Part of this attitude may be due to the conditions in the 1930's under which the philosophy of the milk control programs was established. Also, farmers, both through their representatives and personally, have taken an active part in the public hearings through which milk control agencies obtain evidence for price fixing. Consumers have shown little interest. These circumstances favor the existence of bias toward higher producer prices. The difference between State and Federal programs is largely in the weights given to the factors considered in fixing prices.

The factors and conditions which State milk control agencies by law must consider in fixing prices are somewhat indefinite. They include such factors as cost of production, "reasonable" returns to producers, adequate supply of milk, consumer buying power, proper balance between supply and demand, etc. The weights to be applied to these factors are not specified and consideration for the price relationships between markets usually is not mentioned. Inadequate efforts are made to determine the costs necessary to draw out only the supplies needed for fluid uses, plus necessary surplus. Dealers and consumers have somewhat similar interests in maintaining producer prices at the lowest level necessary to obtain necessary supplies. Partly for this reason assumptions have been made that distributor representation also adequately represents consumers. This, plus a lack of interest by organized consumer groups, has caused insufficient attention to be given to consumer responses to price conditions and changes.

In most State controlled markets, the orders generally fix prices for milk used for fluid milk and fluid cream which remain unchanged until the order is amended, though Georgia recently adopted a formula, and Vermont and New Hampshire set prices which are dependent on the Federal order for Boston. In Federal order markets, formula pricing is the rule. This difference in pricing policy between the two kinds of control agencies may be justified on the basis that State control agencies follow less formal hearing and amendment procedures, which enables them to make adjustments in milk prices more quickly than the United States Department of Agriculture when they wish to do so. (*55*, p. 45) [31]

Whereas Federal control of milk prices has tended to be guided by pool supply and utilization responses in setting prices, the State control agencies have tended to disregard such developments. The States have tended to set up further controls to prevent supply responses from breaking down the established prices. The most direct of these controls have applied to the entry of producers and distributors.

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[30] These cities included Buffalo and Rochester, N. Y., Richmond and Roanoke, Va., Charlotte, N. C., Atlanta, Ga., Birmingham, Ala., Pittsburgh, Pa., Los Angeles and San Francisco, Calif.

[31] This reference also points out other advantages of formula pricing.

Restricting Entry of New Producers

The New York law provides that: "No health officer * * * shall hereafter approve any premises on which milk is produced or any plant * * * or authorize the shipment of milk * * * without first satisfying the Commissioner that such proposed milk supply is reasonably needed * * * will not deprive another municipality of a supply * * * more conveniently related to it * * *" (*48*, art. 21, sec. 258–j).

This authority to regulate the entry of new sources of milk into a market has been used in the Niagara-Frontier and Rochester markets to protect their market pools "from being flooded with milk from new sources * * *" (*55*, p. 53).

"Except for short periods when more milk was needed to meet fluid sales requirements, the markets have been closed to new producers. However, this strict limitation of sources has not prevented a great increase in the pool volume of these two equalized markets. Between 1945 and 1953, the quantity of milk delivered by approved farms increased 48 percent for Niagara-Frontier and 50 percent for Rochester. The surplus over fluid milk sales increased 2.2 times in Niagara-Frontier and 2.7 times in Rochester. Most of the increase in supplies was brought about by higher production per farm."

In Georgia, the State law requires that permits be issued by the Commissioner for shipments of milk from sources outside of the State. Few such permits are issued if milk can be found in Georgia.

The Alabama State Milk Control Board has embarked on a definite policy of restricting the movement of milk from out-of-State producers (chiefly in Mississippi and Tennessee) into Alabama. The Board "ordered, adjudged and decreed" as follows in orders for several markets (*4*, pp. 4–5).

1. Large amounts of unmarketed Alabama-produced milk within the State, while importation continues, is detrimental to the economy of the State.
2. Such a situation is in violation of the intent of the Milk Control Act.
3. This situation will be checked by the Board, and any increase in out-of-State shippers while there is a supply within the State shall constitute a violation of the orders of the Board and any such violator shall be called before the Board to show cause why his license should not be revoked.

Present supply.—Furthermore, the Board * * * has found that there now exists an ample fresh fluid milk supply in Alabama which is unmarketed. The Board, in consideration of these existing facts, now orders the licensee distributors to buy any additional milk from persent licensees of this Board—so long as there remains an existing supply with in the State." [32]

The entry of producers or of outside-source milk has been prevented or inhibited, in some cases, by using other programs to complement the powers of the control board. For example, in certain States, close liaison has developed between the State milk control agency, the Department of Agriculture, and the Board of Health. In one of these States, the milk control agency keep close check on the locations of supplies of milk available within the State to supply deficit markets. The agency informs the health officer in milk-deficit markets of the

[32] This order was scheduled to become effective March 1, 1955. However, producers and distributors challenged its legality in a court case, and the effective date was postponed pending the outcome of the suit.

existence of such supplies. In turn, it was alleged that the health officer is under pressure to see that distributors utilize in-State milk before out-of-State supplies are obtained. This pressure is placed on the local health officers through the State Department of Health which has the power to allocate certain necessary funds to local boards of health.

Another State agency has persuaded the health officer in a major market of the State to restrict the entry of new producers from other States by limiting the area from which he will certify new producers. In this State, year-round shortages brought about the development of regular out-of-State shippers and several out-of-State receiving stations. Not all of these out-of-State shippers are licensed by the State control agency, but all have Board of Health permits. The unlicensed shippers sell milk to distributors at prices below the minimums established by the control agency. Additional supplies of milk of satisfactory quality could be developed readily in the same area at the lower price. As a result, distributors are able to press in-State producers for lower prices. The action of the State control agency in trying to license existing out-of-State producers and prevent entry of new ones is taken to relieve its State's producers from this price pressure.[33]

In at least two milk-deficit States, encouragement is being given to the enactment of State sanitary laws that will provide a uniform sanitary law and uniform interpretation of the law over the State. The purpose behind the move is to make it possible to attain free movement of milk for fluid purposes within the State and thereby lessening the pressure of lower-priced supplies from other States.

Restrictions on the entry of producers or outside-source milk may also result from certain types of seasonal pricing plans. These will be discussed later.

Effects of restricting the entry of producers

Restricting entry frequently has the purpose of compensating for a State's lack of power to regulate prices paid for milk produced outside the State and shipped in. Even the most reasonable State-controlled prices are vulnerable to unregulated milk because of the possibilities of "buying at the blend and selling at class I." Even with the possibility of blend vs. Class I manipulations ruled out, restricting entry may have the further purpose of protecting producer prices which are fixed at levels sufficiently high to attract more milk than the market requires for its high value uses.

High price levels encourage existing producers to expand production, as well as encouraging new producers to enter the market. The expansionary effect of the high prices can bring forth excessive supplies of milk even though no new producers are admitted into the market. Spencer pointed out that this occurred in the Niagara-Frontier and Rochester markets.

In Jefferson County, Ala., in 1945, average daily milk receipts were

[33] This State control agency has had legal opinion that use of its producer licensing power to prevent the entry of the producers in the out-of-State area where supplies were earlier developed could be successfully challenged in the courts.

only 85 percent of Grade A distribution (fluid milk, cream, and skimmilk), as compared with 119 percent in 1954.[34]

From a cost viewpoint, the continuance of high prices, while entry is restricted, may encourage the capitalization of the value of the permit to sell milk into the value of a farm. Another cost effect is to cause considerable capital expenditure for expansion. As a result, these costs become a permanent part of the cost structure in the market area and are used in cost of production data as evidence favoring continuance of unnecessarily high prices for milk.[35]

The attempt by some States to attain complete utilization of in-State milk for fluid milk purposes before allowing the entry of new out-of-State milk tends in part to minimize marketing costs. Under an ideal competitive system, nearby milk would be completely used before any outlay were made for bringing milk from a greater distance. However, out-of-State supplies may be closer to the city needing the milk than some in-State sources. Where prices are set arbitrarily high, the expanded local production may make it unnecessary to draw on out-of-State sources even though outside milk is available at lower prices.

Restrictions on Distributors' Entry

Milk control laws in eight States—Alabama, Florida, Georgia, Montana, New Hampshire, New York, North Carolina, and Virginia—permit the licensing of distributors for distribution in specific markets (table 23).

The New York law in force from 1934 to 1950 specifically stated that "no license shall be granted—except for continuation of a now existing business and no license shall be granted to authorize the extension of an existing business—unless the Commissioner is satisfied that—the license will not tend to a destructive competition in a market already adequately served * * *." During this period, practically all applications for new licenses or extensions of existing businesses were denied, except in cases where the applicant was taking over an existing business.

Repeated efforts to obtain the repeal or modification of this clause resulted in the rewriting of the law in 1950 in such a manner that the Commissioner "must by means of evidence presented at a hearing determine * * *" that the "issuance of the license will tend to a destructive competition in a market already served, * * *" This change has not affected the policy of the Commissioner. The basis and justification for this law appears to lie in the conditions in the dairy industry in the early 1930's. At that time, milk wagon drivers, who were unemployed, and farmers, disgusted with the low prices for their milk, entered into processing and distribution. The increases in the number of dealers caused a loss of volume by existing business; increased costs caused the failure of some distributors and losses to producers.

The Georgia and North Carolina milk control commissions license

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[34] Bureau of Food and Dairy Inspection, Birmingham, Ala.

[35] In the Niagara-Frontier and Rochester markets at milk control hearings in the fall of 1954, producers pleaded their costly investments in facilities to expand production to meet the needs of their markets, as a reason for continuing the existing level of Class I prices.

dealers for specific areas, but are less restrictive than New York in exercising their authority.

In North Carolina, the State milk control commission established seven districts. Licenses are granted to distributors to sell milk in specific districts. In one case, a reputable firm that had a license to operate in one district was denied a license to expand into a new district. Because expansion and new entry are only partially restricted, and because considerable intermarket movement of packaged milk existed when the commission was established, the controls on entry and expansion are not as burdensome as in New York.

In Virginia, the number of applications from new distributors have not been large and only a small proportion have been denied. (*20*, pages 15–16.) Most of these refusals were made by local boards in the early years of the commission. Some of the refusals were revoked by the commission. One court case occurred in which the Supreme Court of Appeals ruled that the commission's denial of a license was "arbitrary and capricious" on the grounds that the decision was not supported by evidence.

Effects of restricting the entry of distributors

The position taken by New York, that restricting the entry of distributors will maintain efficiency, is tenable only to the extent that economies of scale are mainained or obtained through the demise of firms and increase in market population. Restrictions on entry also remove considerable competitive pressure on existing firms to adopt new processing and distributing methods, such as consolidating routes and plants, changing from glass to paper containers, adoption of multiple-unit containers, and more rational pricing plans.

The effectiveness of the law in reducing the number of distributors (to get economies of scale) is doubtful. The rate of decrease in New York distributors does not seem to be significantly greater than that in other States, where reductions in dairy plant numbers have been brought about by competition. In fact, there is some indication that New York's restricting of licenses keeps more, rather than fewer, dealers in business.

Restricting the entry of distributors has resulted in the development of a monetary value for the license.[36] This value has become capitalized into the value of milk businesses having licenses. Since the only way new dealers can enter a market or an old dealer expand is by buying out an existing business, the capitalizing of licenses into the value of firms places an unnecessarily high overhead cost on new or expanding firms. Obviously in the absence of outside competition with a closed market and no opportunity for shifting into new markets, existing firms usually have less to gain by price cutting than by market sharing.

Some milk dealers may be willing to pay inflated values to obtain licenses in order to gain increased efficiency by consolidating operations with another firm. Thus it appears that States which restrict

[36] Theoretically equal to the capitalized value of the increment of net income attributable to the advantage obtained by the possession of a license.

the expansion of dairy firms actually have retarded the growth of dairy firms into the most efficient kind of units. In the Midwest and West, many firms are consolidating processing and bottling operations at one location. They carry on widespread wholesale distribution in paper containers to branch distributing points, stores, institutions, etc., and retail distributing from the branch plants.

Seasonal Pricing Plans

Quota or base-surplus plans have been used in certain markets as a seasonal pricing device, in order to lessen variations in receipts of milk from the flush season to the short season of the year. Of itself the quota plan has advantages in that it offers to producers an incentive to assume added costs necessary to obtain even production throughout the year. However, the plan may be so designed as to impose restrictions on the entry of new producers and may seriously affect the movement of milk if the restrictions are severe.

In Alabama, a regulation was issued which would reserve quotas for licensees of the control agency.. Licenses were optional for out-of-State producers. Once they became licensed they became subject to Alabama regulations. The order was expected to force out-of-State producers to volunteer to become licensees of the Alabama milk control agency, in order to sell milk. A second effect would be to force distributors to pay out-of-State producers the same minimum prices that they pay Alabama producers.

In Alabama, distributors may deduct their daily average of purchases of emergency milk during September–February (deficit period) from daily Class I sales in March–August (flush period). The remaining Class I sales are prorated to producers in the usual manner. A maximum of 7 percent of Class I sales may be deducted in this manner.

The quota plan as it operates in North Carolina is "open," in that producers, who can find a distributor who wants their milk, can get a base and deliver milk. Under the contracts between producers and distributors in Georgia, the quota plan operates with "closed" bases. New producers can obtain bases only as they are vacated, or by sale or transfer.

The fall premium pricing plan has found use in some cities with seasonal milk shortages. Under this plan part of the payment by dealers for milk is set aside in the spring and paid out to producers in the fall on the basis of their fall deliveries. The plan has no restrictive features.

In California, distributors are required to have a contract with each producer. These contracts specify the amount of milk for which the dealer will pay a Class I price. Prices paid for the balance of deliveries are determined by their usage. The amount may be absolute or it may be a percentage of deliveries. The contract also may specify the total amount of milk the dealer will accept.

These contracts may be used to discriminate among individual producers or groups of producers by limiting deliveries or limiting proportions of milk for which Class I prices are guaranteed. In periods of weak demand, distributors are able to buy "short" and in periods of

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rising demand the guarantee becomes a means of competing for supplies.

Types of Pools

Marketwide pools are used little in cities under State milk control as compared with Federal order markets (table 24). From the standpoint of the control agency, dealer pools require a minimum of administration, fewer reports, less rigorous auditing, and no equalization fund. From the standpoint of this study, it may be significant that dealers in a dealer pool market may be more reluctant to accept new producers than if the pool were marketwide.

Resale Price Fixing

Resale price fixing has been established for various purposes including the following: To control price cutting and "destructive" competition, to protect against producer price cuts and losses caused by dealers' bankruptcies; to protect a State's producers and distributors against competition from low-priced out-of-State milk, to maintain distributor margins that will enable the industry to pay reasonable prices to producers; to prevent price manipulation by distributors for the purpose of strengthening their competitive position, to check rebates and other advantages given customers with exceptional bargaining powers and to make determination of resale prices public rather than a matter for secret understanding.

Originally most of the States included resale price fixing in their milk price control laws. Eleven of the remaining sixteen State control agencies still fix resale prices (table 25). One additional State requires that dealers list proposed prices with the control agency 10 days before they go into effect; and adhere to listed prices.

A number of States have laws which prohibit the sale of milk at less than cost, or which prescribe minimum markups over cost. Such laws were not studied in detail, since they did not seem generally to give rise to substantial restrictions on movement or merchandising of milk.

It is obvious that resale prices must be established with a close relationship to producer prices. In addition to the general criteria of public interest, adequate milk supply, etc., the cost of processing and distribution and a reasonable return to dealers are the factors usually considered. California's law adds to these the maintenance of sufficient but not excessive processing and distribution capacity.

Problems in administering resale price fixing are legion. Resale prices must be set at a level that is not confiscatory and at the same time does not retard consumption of fluid milk. Dealers vary considerably in volume, type of operation, and emphasis on certain kinds of outlets and products. Costs for these varying kinds of operations must be determined and "reasonable" costs determined. These costs must apply at various levels of distribution for different products sold in different sizes of containers and in different ways with varying services attached to their distribution.

In some States, auditors determine costs, allocate joint costs according to standard auditing procedures which involve some "rule of

TABLE 25.—*Resale pricing practices in 11 States under State milk control, April 1955*

State	Store differential	Differential, paper over glass	Size of container for which resale prices are set						Quantity discount on retail sales	Sales discounts on multiple-unit containers			
										Store and home delivery		Dairy plants, stores, farm	
			⅓ pt.	⅓ qt.	Pt.	Qt.	½ gal.	Gal.		½ gal.	Gal.	½ gal.	Gal.
	Cents per quart	*Cents per quart*							*Cents per quart*	*Cents per quart*	*Cents per quart*	*Cents per quart*	*Cents per quart*
Alabama		1			X	X	X	X	[1] 1½	1½	1¼		
California	[2] 0–1½				X	X	X	X	([3])	[2] 0–1½	[2] 0–1½	[2] 0–½	[2] 0. ¾
Florida				([4])	X	X	X		[5] ½	[5] ½		2½	
Georgia		1	X	([6])	X	X		X	2–3				
Maine		1	X	([6])	X	X							
Montana			X			X	X	X				[7] 2	[7] 2
New Hampshire		1	X		X	X			[8] 1				
Pennsylvania	[2] 1–1½		X		X	X							
Rhode Island	1	1	X	X	X	X	X			1½		1½	
Vermont			X		X	X		X	[9] 3				
Virginia	[2] 0–2		X		X	X	X		[10] 1–2				

[1] If two single quart packages are jointed together into a single nonseparable unit, they sell at the same price as a single half-gallon container.

[2] Varies by market areas.

[3] Flat price per quart plus a delivery charge of 3 cents for each *delivery* of fluid milk in Alameda-Contra Costa marketing area (modification of the Elwell plan); flat price less ½ cent per quart for deliveries in excess of 60 quarts per month in Los Angeles, Orange, and San Bernardino-Riverside marketing areas.

[4] In some areas.

[5] One-half cent per quart discount for all milk sold in ½ gal. containers or in 2 single quart packages when securely joined together.

[6] 10-ounce package.

[7] On cash-and-carry sales only.

[8] Retail price of 8 or more 1-quart bottles delivered at one time to one customer at one address for home consumption may be 1 cent per bottle less than the scheduled retail single quart price. Also, all milk in pint bottles charged at the pint schedule except single pints sold in combination with one or more quarts, at which time the single pint may be charged for at one-half the scheduled quart price.

[9] When sold cash-and-carry to consumers at processing plant in quantities of 4 quarts or more.

[10] In some areas, 1 cent per quart to retail customer buying 6 or more quarts of milk per day per calendar month for home delivery; 2 cents per quart per customer buying 12 or more quarts per day per calendar month for home delivery.

thumb" decisions, and determine a range of costs for each size of container and for wholesale and retail operations. Some auditing of store distribution may also be made. At this point the control agency has the problem of deciding which costs are reasonable and how much profit is necessary to maintain distribution facilities. The alternative methods may be to take a simple or weighted average of the available costs, to edit out extremely low and extremely high costs before averaging or select a model cost or to use the highest cost figure necessary to keep ample distribution facilities in business. California in principle uses the last kind of cost figure as a guide, but in practice appears to edit cost figures and use those applicable to the bulk of distributors.

Other States depend on cost data presented by dealers at hearings. This kind of data is questionable when such costs are for individual firms, not necessarily typical of the market, or incomplete or not adequately explained. In some cases several milk dealers in a market have presented combined cost statements, which were prepared by public accountants.

Cost studies may be made for the control agencies by State colleges. Such studies have been used extensively by Oregon, California, Maine and Vermont milk-control agencies.

Resale prices established by the milk-control agencies have varied with location and size of market, type of service, grade of milk, butterfat content, kind and size of container, and quantity sold. The greatest problems State milk control agencies have faced have been concerned with the level of prices and price differentials for various kinds of service—it is in deciding these questions that the agency may profoundly affect the merchandising of milk.

Resale price levels under State milk control

Simply stated, resale price levels are a function of producer prices and distributor margins. Obviously, producer prices vary greatly from market to market in response to supply-demand relationships and other factors. For this reason resale price policies of the control agencies are more reasonably evaluated by comparing distributor margins than resale prices. These margins in various markets are functions of local wage rates, topography, density of population, percentages of wholesale and retail distribution, typical sizes of deliveries per customer, relative sales in various sizes and kinds of containers, etc.

Clarke et al compared the January 1954 home-delivery prices in controlled markets with those in uncontrolled markets (*17*, pages 148–152). They used 100 markets and made comparisons within classes grouped by population (table 26).

The data indicate that price spreads were not higher in controlled markets—lower, if anything, possibly because efficiency was stressed when pricing standards were defined. Also it appears that resale price control has had little influence on average levels of distribution price spreads but may have tended to retard such innovations as use of proper containers, multiunit containers, volume discounts and large store differentials.

TABLE 26.—*Summary of price spreads for fluid milk distribution in controlled and uncontrolled markets, by market size, January 1954*

Type and size of market [1]	Number of markets	Price spread [2]					
		Retail	Wholesale	Store	Wholesale plus store	Store differential [3]	
						Single quart	High
		Cents per quart of milk					
Population Under 50.000							
Controlled:							
Average	7	10.3	7.9	2.1	10.0	0.3	4
Range		9.3–11.1	7.1–8.6	2.0–2.5	9.1–10.6	0.0–1.0	0.0–1.0
Uncontrolled:							
Average	11	10.3	7.8	2.3	10.1	0.2	0.9
Range		7.8–12.1	5.8–9.7	1.0–3.0	7.8–12.1	0.0–1.0	0.0–3.5
Population 50,000–99,000							
Controlled:							
Average	8	10.7	8.6	1.9	10.5	0.2	0.3
Range		9.2–13.2	7.2–10.8	1.5–2.3	9.2–12.3	0.0–1.0	0.0–1.0
Uncontrolled:							
Average	15	11.6	9.1	2.4	11.5	0.1	1.0
Range		8.7–13.2	6.7–10.7	2.0–3.5	8.7–13.2	0.0–1.0	0.0–4.5
Population 100,000–199,000							
Controlled:							
Average	5	10.8	8.2	2.2	10.4	0.4	0.5
Range		10.4–11.1	7.2–8.9	2.0–2.5	9.4–11.1	0.0–1.0	0.0–1.0
Uncontrolled:							
Average	18	11.6	8.8	2.5	11.3	0.3	1.1
Range		9.3–16.6	6.5–12.6	1.5–4.0	8.6–14.6	0.0–2.0	0.0–2.5
Population 200,000–399,000							
Controlled:							
Average	8	10.6	8.1	2.1	10.2	0.4	0.5
Range		8.8–11.4	7.2–8.8	1.5–3.0	9.4–11.4	0.0–1.0	0.0–1.0
Uncontrolled:							
Average	10	11.5	8.9	2.3	11.2	0.4	1.4
Range		10.5–13.5	7.5–10.5	1.5–3.5	9.1–12.5	0.0–1.5	0.0–5.0
Population 400,000–999,000							
Controlled:							
Average	3	11.6	8.6	2.2	10.8	0.8	1.3
Range		11.0–12.3	7.5–9.3	1.5–2.5	10.0–11.6	0.0–1.5	0.0–1.5
Uncontrolled:							
Average	11	11.2	8.3	2.2	10.6	0.7	1.9
Range		9.6–13.4	7.1–10.9	0.5–3.5	8.7–12.9	0.0–2.0	0.5–5.0
Population 1,000,000 and over							
Controlled:							
Average	2	10.7	7.6	1.8	9.4	1.2	1.2
Range		10.6–10.8	6.6–8.6	1.2–2.5	9.1–9.8	1.0–1.5	1.0–1.5
Uncontrolled:							
Average	2	11.8	9.1	2.2	11.4	0.5	4.5
Range		11.5–12.2	8.5–9.7	1.5–3.0	11.2–11.5	0.0–1.0	(4)
All markets							
Controlled:							
Average	33	10.7	8.2	2.1	10.3	0.4	0.5
Range		8.8–13.3	6.6–10.8	1.2–3.0	9.1–12.3	0.0–1.5	0.0–1.5

See footnotes at end of table.

TABLE 26.—*Summary of price spreads for fluid milk distribution in controlled and uncontrolled markets, by market size, January 1954*—Continued

Type and size of market [1]	Number of markets	Price spread [2]					
		Retail	Wholesale	Store	Wholesale plus store	Store differential [3]	
						Single quart	High
All markets—Continued		Cents per quart of milk					
Uncontrolled:							
Average	67	11.3	8.6	2.4	11.0	0.3	1.3
Range		7.8–16.6	5.8–12.6	0.5–4.0	7.8–14.6	0.0–2.0	0.0–5.0
Grant total:							
Average	100	11.1	8.5	2.3	10.8	0.3	1.0
Range		7.8–16.6	5.8–12.6	0.5–4.0	7.8–14.6	0.0–2.0	0.0–5.0

[1] Market size based on 1950 population data.
[2] All averages are simple averages, not weighted by market size or volume of sales.
[3] The "high" store differential refers to difference between single-quart, home-delivered price and the lowest reported out-of-store price—usually a multiple-unit price.
[4] Both markets report high store differential of 4.5 cents.

Computations of Clarke, et al (*17*) based on reports of the U. S. Department of Agriculture.

Store differentials under State milk controls

The most controversial question in resale price fixing has been the amount of differential which should be established between out-of-store prices to consumers and prices for retail home-delivered milk.

Retail distributors and labor unions, often with support from producer organizations, have endeavored to minimize store differentials. Chain stores, wholesale distributors and some consumer groups have pressed for wide differentials.

The arguments for minimizing differentials are: (1) that home delivery promotes milk consumption and that increases in store sales decrease milk consumption; and (2) that the displacement of home delivery by store sales causes increased costs for home deliveries, adding to the cost of milk for a large proportion of consumers and further discouraging consumption. Stores also are charged with using milk as a loss leader.

Proponents of store differentials insist that the consumer is entitled to perform his own services at a price saving if he desires and they attribute observed increases in sales to the widening of store differentials.

Arguments against store differentials

Objective data are not available to show that home delivery promotes consumption. Studies in Connecticut show that the loss of volume, particularly the loss of customers taking larger deliveries, undoubtedly decreases the efficiency and raises the cost of home deliveries (*16*). The increased cost of home deliveries would weigh most heavily on the small volume buyers, those who prefer convenience and service to price advantage, and those who, for various reasons, are not able to buy at stores. The home-delivery costs should tend to rise as the proportion of store sales increases. Studies to verify these hypotheses have not yet been made.

That stores use milk for a loss leader may be true. In Oregon after milk control was repealed in October 1954, for a few days some stores sold milk at prices well below costs. Price wars have occurred sporadically in widely scattered markets, with milk selling below cost. But, there is no evidence that stores make a practice of continually selling milk at a loss, prorating the loss over other items whose margins are high enough to absorb the loss.

Arguments for store differentials

Careful studies indicate that store distribution is possible in larger cities at 2 cents or more per quart below home delivery costs (*55*, p. 97, (*38*). In small towns and villages store distribution may cost as much as or more than home delivery, partly because labor costs on routes are lower and the size of deliveries to stores is smaller.

Conditions are most favorable to store distribution where stores are conveniently located to consumers, where families have no person at home to take in milk when it is delivered or where large volume consumers are numerous and anxious to obtain the savings of cash-carry buying.

To a considerable extent, the availability of relatively low-priced milk is believed to encourage milk consumption, particularly by middle and low-income groups (*6*, p. 1510).

Bartlett considers that price competition is more keen for milk sales through stores than sales on retail routes. In a number of articles and studies, he has stated that wide store differentials are associated with high per capita milk consumption and that increases in store differentials tend to be associated with larger-than-average increases in consumption (*7*), (*5*).

From a legal viewpoint, a chain store argument for store differentials contends that if resale prices are based on producer prices plus processing and distribution costs, it is discriminatory and of doubtful legality for a milk control agency to establish prices for retail and store distribution at the same level, where different costs can be demonstrated for these operations.

Effect of State control agencies on store differentials

Spencer and Christensen conclude that: "In the main, the milk control agencies that fix resale prices have resisted this pressure (for widening or establishing store differentials) and have kept the retail prices at stores in the larger cities closer to the delivered prices than they would have been without regulation. It is probable, however, that in most markets of less than 50,000 population, store differentials would not have been established, even though dealers and storekeepers had been allowed to determine retail prices competitively" (*55*, p. 99).

Their analysis shows that the 3 markets, over 1,000,000 in population, with resale price fixing by State control agencies had 1 cent and 1½ cent differentials as compared with 2 to 5 cents for New York, Chicago, St. Paul, Detroit, and Washington. Baltimore was the only nonregulated market of 1,000,000 population that had no differential. Of the regulated and nonregulated markets of 100,000 to 900,000 population, about the same proportion had store differentials.

Bartlett grouped markets by method of price determination (*6*, p. 1510). He showed that nonregulated markets in 1953 had considerably wider store differentials than regulated markets. While his analysis does not differentiate between markets of different sizes, he is able to point out that in nonregulated markets the store differentials increased 1 to 2 cents from 1929 to 1953 while no change occurred in regulated markets.

Chain stores which were willing to take the lead in reducing prices have repeatedly requested and have been refused lower minimum prices for sales out of stores. There is no doubt that State control agencies have retarded the development of store differentials.

Price Differentials for Sizes and Types of Containers

Bottling and distributing costs vary by sizes of container, and it is customary for the milk industry to charge prices that reflect, more or less well, these differences. In some cities recognition has been given to lower distribution costs obtained by multiple-unit sales by giving quantity discounts. Some State milk control agencies have accepted these trade practices less completely than others.

For example, Spencer and Christensen note that none of the control agencies in the Northeastern States authorizes a lower retail price per quart for milk sold in 2-quart containers and gallon jugs than in quart containers. Most of the State control agencies do not establish a price for milk in gallon jugs. In some States, gallon jugs are not legal containers for milk though their use is rapidly increasing in many markets in other States. The Alabama control agency restricted the use of some sizes of containers on the basis of reducing costs.[37]

Resale pricing of milk in paper containers as compared with that of milk in glass, was treated variously by control agencies. In most orders no special provision existed for separate pricing. Various points of view presented by dealers to the control boards requested both higher and lower minimum prices for paper containers than for glass. The basis of the request for higher prices was that the use of paper involved additional processing costs which should be recognized. This argument had greatest validity where milk plants were small or had both glass and paper operations, each with small volume. Sales territories were restricted and wholesale stops were a relatively small proportion of sales.

In Alabama, Georgia, Maine, New Hampshire, and Rhode Island, the price of milk in paper containers is 1 cent per quart above the price of milk in glass (table 25). In most States, however, prices are the same in both types of containers.

Quantity Discounts

Quantity discounts for retail customers are permitted in only part of the controlled States. Apparently the major reason for not allowing them is that their use is likely to add to the difficulty of enforcing the minimum retail prices.

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[37] This regulation was upheld by a State Supreme Court decision on the basis that the level of costs affected profits and prices to consumers and therefore affected the public interest.

Price Differentials by Quality or Grade of Milk

Special or premium milk, such as "breed" milk, milk with higher fat content than standard milk, Vitamin D milk, etc., is sold in many markets at premium prices. Since differences in quality and grade may be used in competition as well as price, control agencies have been constrained to establish prices that recognize special milks.

The required labelling for milk fat content has had the effect of retaining a degree of price competition. One example is the Oregon regulation which set up three grades of milk according to milk fat, each with a range of permissible fat content: 3.5–3.8; 3.9–4.3 and over 4.3. Labelling for minimum fat content was required. One dealer with low costs immediately established his fat content at the top of the permitted range as a competitive measure. Competition forced other dealers to meet the fat content and squeezed their margins.

In some instances, dairy breed associations have prevailed on the control agencies to establish higher prices for milk of their respective breeds when advertised and sold at retail as milk from that breed.

Enforcement of Resale Price Regulations

The enforcement of resale prices is difficult, because there are thousands of transactions involving a number of different milk products, each sold in various sizes of containers.

Fewer instances of noncompliance with minimum prices occur in home-deliveries than in wholesale deliveries. Distribution on home-delivery routes is fairly standard. The average volume per stop is small and therefore the opportunity for gain by price rebates, etc. is scanty. Few chances exist for differentiating among customers or among routes by varying the amount of service given with deliveries. Nevertheless, at least one State has court cases pending that allege the use of illegal trade practices in home deliveries. The practices include the giving of free milk or other products to obtain accounts, give-aways to customers, rebates of price difference between store and home delivered price.

Violations of wholesale minimum price regulations or unfair trade practices involved in wholesale operations are more common.

There are two basic reasons why minimum price enforcement is difficult in wholesale business. The first is that considerably lower distribution costs can be obtained when the volume of delivery per stop is increased. The cost of delivering, say, 20 cases of milk is little more than that of delivering 5 cases. A major supermarket may take 2,500 quarts of milk daily. Because of the low costs of handling such quantities, supermarkets are desirable stops and have unusual bargaining strength.

The second factor which favors the use of discounts and rebates is the fact that some firms have lower processing or distribution costs than others. When resale prices are established, either by State control agencies or industry agreement, at marketwide levels, some firms are able to obtain higher net returns per unit sold than other firms.

These conditions exist both in controlled and uncontrolled markets. They favor the development of a system of secret discounts and re-

bates favoring larger groceries and supermarkets and enable low cost firms to to expand their proportion of the markets' milk sales. Since these discounts and rebates do not affect the level of retail prices, they do not aid milk consumption. In uncontrolled markets, excessive use of rebates and discounts by some dairies may lead to retaliation by other dairies and even to price cutting. Under State control laws, such price concessions are illegal.

In an effort to evade restrictions on price cutting and other forms of price concession on milk sales, dairies have turned to giving price advantages on uncontrolled products such as ice cream, cottage cheese, eggs, etc., when such sales are made in conjunction with milk sales. In some cases the quality of the product has been increased as a competitive device. Competition by services has developed. Coolers, ice cream cabinets, and other store fixtures may be furnished; stores may be loaned money at moderate interest rates; and reports exist of outright gifts of money to stores in return for their accounts. Subsidiary firms, such as a finance company and a wholesale grocery company, have been used by dairies to give favored treatment to desirable store accounts.

Enforcement of Trade Practice Rules

All State control laws authorize the regulation of trade practices. These may include a long list of possible variations in services given customers or pricing practices, which depart from what is regarded as the usual trade procedure, gifts of any products, loans, etc. Sometimes these are prohibited; in other cases they are permitted only if made available to all buyers.

In spite of prohibitions on the use of competition by such means, these practices flourish under the rigid system of resale prices set by State milk control agencies. Their widespread development has contributed to the repeal of resale price fixing in a number of States.

In their efforts to prevent resale price competition by means of services, several State milk control laws allow milk control agencies to limit or prohibit sales promotion and/or advertising.[38] Through resale price fixing, State control laws remove the possibility of using price incentives to increase milk consumption. If, in addition, these State milk control agencies *unduly* restrict advertising and promotion they leave dairies without an effective means for increasing the use of milk.

Innovations in Distribution Under Resale Price Fixing

In the course of evading fair trade provisions, some developments have occurred which are innovations and perhaps improvements in milk distribution in that they may offer possibilities of distributon at lower prices.

In California, integration between dairy and supermarkets has developed. Several of the dominant milk companies have control of a number of chain stores through subsidiaries. One prominent food

[38] Alabama, California, Georgia, Pennsylvania, Virginia. Alabama, California and Massachusetts also forbid false and misleading advertising.

chain owns its own dairy product and milk concerns. Two groups of stores, smaller chains and independents, each operate their own dairy.

The result of the development of such integrations has been to remove more profitable accounts from the hands of "normal" dairies and increase their cost of distributing milk.

Since the control agency tends to rule out abnormal operations in developing costs to be used in resale price fixing, the higher costs of these "normal" dairies may become a factor impeding any lowering of resale prices and distribution margins become so widened that some firms may obtain excessive margins.

Another variation in both retail and wholesale distribution has developed partly because of the width of distributors' margins. A number of processors in southern California process and bottle milk for subdealers and vendors who limit their operations to distribution. About 63 percent of the routes in San Diego are owned by such distributors. (*57*) Margins have been established by the milk control agency based largely on operations of firms using union labor, with restrictions on hours of delivery, days of work, size of load, etc. These restrictions increase costs.

By owning and operating their own routes, subdealers and vendors have been able to operate without regard to labor union restrictions. Their margins of profit and total returns and willingness to work longer hours or for lower wages have enabled them to engage in some of the trade practices mentioned above in order to obtain customers and entry into the market in the face of competition from large firms.

The width of the margins has been a factor allowing numerous cash and carry stores or drive-ins to enter into business in suburban areas. Such stores operate usually at a dry lot dairy farm, milking 200 or more cows. Pipelines from the milking machines deliver milk directly to the small processing plant and retail sales are made at the plant. Farm-to-market deliveries and plant-to-store deliveries are obviated. Costs of distribution thus are minimized. California now recognizes these lower costs and fixes their out-of-store prices below out-of-store prices for normal food-store operations.

TRANSPORTATION REGULATIONS

Milk is a relatively expensive commodity to transport. The value of a given weight of milk is low compared with that of many other farm products, it must be protected from contamination and high temperature, and it must be moved without any delays. The high cost of transportation charges relative to the value of milk accentuates the importance of regulations directly affecting railroads and truck lines. For example, at average prices for 1953–54, the delivered price of fluid milk shipped from Wisconsin to New York City would have consisted of approximately 35 percent transportation charges and 65 percent value of milk f. o. b. the originating plant. A 10-percent increase in freight rates would add nearly one-half cent per quart of milk to the transportation charge over such a distance.

Truck transportation is the principal method by which milk is moved, particularly the long-distance movements of "emergency" supplies. At Boston, somewhat more than half of the receipts of milk come in by rail, but at New York the proportion is about one-sixth and at Philadelphia about one-twentieth (table 27). Most of the receivers interviewed in this study got their milk by truck.

TABLE 27.—*Milk receipts at Boston, New York, and Philadelphia, by rail and truck, 1951* [1]

[1,000 pounds]

Market	Rail	Truck	Total
Boston	4,970	3,799	8,769
New York	7,130	37,788	44,918
Philadelphia	552	10,670	11,222

[1] Latest full calendar year for which data are available for all 3 markets. The USDA Market News Service discontinued collection of data on receipts of milk at New York, July 1, 1952.

HIGHWAY LOAD LIMITATIONS

In this study, the aspect of trucking regulations most frequently complained of by dairy firms in connection with the transportation of milk was highway load limitations. Limits on vehicle size and weight are especially burdensome to truckers transporting milk interstate. Such restrictions on trucks are imposed on the grounds (a) that heavily laden trucks with weight not properly distributed over an adequate number of axles can damage roads and bridges, and (b) that trucks of excessive length, width, or height constitute a threat to vehicle safety and movement of traffic, especially in congested areas. There are widely divergent opinions as to the extent to which, and the circumstances under which, trucking produces these results. With State, Federal, and private financing, studies of the effect of trucks on the durability of highways are in progress.

All 48 States and the District of Columbia impose weight and size limits on vehicles, and there is little uniformity among the State limits. Consequently, a trucker moving from State to State must conform to several standards.

Milk haulers using tractor, semitrailer combinations are likely to be more circumscribed by weight limits than they are by requirements in regard to size—width, height, or length.

No State imposes height limits of less than 12½ feet, nor a width limits of less than 96 inches (table 28). No commonly used milk transport truck would be likely to exceed these limits. The most restrictive limit on length for the tractor, semitrailer combination is 45 feet, a limit which is imposed in a number of States. In the western part of the United States, length limits are generally less restrictive, with Nevada imposing no limit on vehicle length.

Given the various length limits, the milk trucker finds himself bound by the weight limits. In most States, weight limits take into account vehicle length, number of axles, axle spacing and other

factors which relate to the concentration of weight upon the bearing surfaces of highways or bridges. It is apparent that there is a wide range of official policy as to what constitutes the proper limit on truck weight.

Vehicles used in long-distance milk transportation are generally 3- and 4-axle combinations—a tractor with a tank semitrailer. Weight limits for the 4-axle vehicle range from 42,000 pounds in Kentucky to 69,000 pounds in Utah. Weight limits for the 3-axle combination are usually somewhat lower. Milk haulers, like most other truckers, are engaged in efforts to reduce vehicle weight by using light metals for construction and by other means. A recently developed plastic tank weighing some 500 to 600 pounds less than a conventional steel tank is a case in point. Every pound eliminated from the weight of the vehicle can be added to the payload.

TABLE 28.—*Size and weight limits for two typical semitrailer combinations, United States, March 15, 1954*

Region and State	Vehicle length		Gross weight [1]		Width	Height
	Semi-trailer combination	Other combinations [2]	3-axle tractor-semi-trailer combination	4-axle tractor-semi-trailer combination		
	Feet	*Feet*	*Pounds*	*Pounds*	*Inches*	*Feet*
New England:						
Maine [3]	45	45	50,000	50,000	96	12½
New Hampshire	45	45	50,000	50,000	96	13½
Vermont	50	50	50,000	50,000	96	12½
Massachusetts	45	NP	50,000	50,000	96	NR
Rhode Island	50	50	50,000	50,000	102	12½
Connecticut	45	NP	50,000	60,000	102	12½
Middle Atlantic:						
New York [3]	50	50	58,400	61,500	96	13
New Jersey	45	50	60,000	60,000	96	13½
Pennsylvania	45	50	45,000	45,000	96	12½
East North Central:						
Ohio [3]	45	60	57,000	67,600	96	12½
Indiana	50	50	54,000	68,000	96	12½
Illinois	45	45	45,000	59,000	96	13½
Michigan [4]	50	50	54,000	68,000	96	12½
Wisconsin [3 5]	50	50	54,000	66,000	96	12½
West North Central:						
Minnesota [3]	45	45	54,000	64,000	96	12½
Iowa [3]	45	NP	54,000	65,400	96	12½
Missouri [3]	45	45	54,000	60,000	96	12½
North Dakota [3]	45	45	54,000	57,700	96	12½
South Dakota [3]	50	50	54,000	64,600	96	13
Nebraska [3]	50	50	54,000	64,600	96	12½
Kansas [3]	50	50	54,000	63,800	96	12½
South Atlantic:						
Delaware [6 3]	50	60	48,000	60,000	96	12½
Maryland [3]	55	55	65,000	65,000	96	12½
District of Columbia [3]	50	50	65,400	65,400	96	12½
Virginia [5]	45	45	40,000	50,000	96	12½
West Virginia [3]	45	45	54,000	60,800	96	12½
North Carolina [5]	48	48	[7] 46,200	[7] 58,800	96	12½
South Carolina [3]	50	50	60,000	68,300	96	12½
Georgia [3]	45	45	53,900	53,900	96	13½
Florida [3]	50	50	60,000	64,600	96	12½
East South Central:						
Kentucky [5]	45	NP	42,000	42,000	96	12½
Tennessee [3]	45	45	54,000	55,900	96	12½
Alabama [3]	45	NP	53,900	53,900	96	12½
Mississippi [3]	45	45	45,000	52,600	96	12½

See footnotes at end of table.

TABLE 28.—*Size and weight limits for two typical semitrailer combinations, United States, March 15, 1954*—Continued

Region and State	Vehicle length		Gross weight [1]		Width	Height
	Semi-trailer combination	Other combinations [2]	3-axle tractor-semi-trailer combination	4-axle tractor-semi-trailer combination		
West South-central:	*Feet*	*Feet*	*Pounds*	*Pounds*	*Inches*	*Feet*
Arkansas	50	50	45, 000	50, 000	96	12½
Louisiana	50	60	45, 000	50, 000	96	12½
Oklahoma [3]	50	50	54, 000	60. 000	96	13½
Texas [3]	45	45	54, 000	58, 400	96	13½
Mountain:						
Montana [3]	60	60	54. 000	68, 000	96	13½
Idaho [3]	60	65	54. 000	68. 000	96	14
Wyoming [3]	60	60	54, 000	68. 000	96	13
Colorado [3]	60	60	54. 000	72, 000	96	12½
New Mexico	65	65	54. 000	68, 000	96	12½
Arizona [3]	65	65	54. 000	68, 000	102	13½
Utah [3]	60	60	54, 000	69, 000	96	14
Nevada [3]	NR	NR	54, 000	68, 000	96	NR
Pacific:						
Washington [3]	60	60	46, 000	60, 000	96	12½
Oregon [3]	50	50	54, 000	60, 000	96	12½
California	60	60	54, 000	68, 000	96	13½

[1] In States in which the law does not give specific weights for the given combinations, the gross weight limits were calculated from maximum axle loadings using the following assumptions: (1) An 8-foot overhang was deducted from length of vehicle, (2) tandem axles were considered to be a minimum allowable distance apart, (3) it is assumed that each axle (including the front axle) carries the maximum permissible load, and (4) load carrying axles have dual wheels.

[2] "Other combinations" are: Straight trucks with full trailer; tractor with semitrailer and full trailer.

[3] In this State, the permissible weight was calculated by the National Highway Users Conference using the "bridge formula" specified by the State.

[4] "Frost law" requires reduced loads in spring season.

[5] Limit shown applies only on designated highways. On others, limit is lower.

[6] With power brakes.

[7] Includes tolerance.

Key: NR=No restriction; NP=Not permitted.

Data tabulated and calculations made by the National Highway Users Conference, Commercial Car Journal, April 1954.

Among liquids, milk is a relatively heavy commodity in relation to its volume. Consequently, a milk tank is generally smaller than a tank carrying an equal number of gallons of gasoline or some other fluid and thus requires less overall vehicle length. The largest vehicles now in general use as milk transports carry 5,000 gallons. Assuming the tractor and semitrailer have an empty weight of 15,000 pounds, the gross vehicle weight of this combination is 58,000 pounds. A 4-axle vehicle of this weight would not be permitted in many States, especially east of the Mississippi.

A 4-axle vehicle with a tank capacity of 4,000 gallons would attain a gross vehicle weight of approximately 49,400 pounds, which could be legally operated in all but 2 States.

The 3,000-gallon tank mounted on the same vehicle would weigh 40,800 pounds, a gross vehicle weight which would be permitted throughout the United States.

At the present time, the vehicle with a tank capacity of 3,000 to 3,500 gallons is probably the most popular among long-distance bulk milk haulers.

All the tanks discussed above could be mounted on vehicles within the legal limits on length in all States. It is thus apparent that the milk hauler is bound more by weight restrictions than by length,

except that, if any State's regulations were amended to allow greater length, there probably would, at the same time, be an amendment to allow more weight because of the greater length and the consequent improvement in weight distribution.

Carriers in interstate commerce must limit their vehicles so as to meet standards in the most restrictive State through which they operate. This may mean that as to a particular vehicle operating in a second State, the trucker cannot take full advantage of the limits allowed.

The States also require truckers to observe certain limits as to weight on any one axle or tandem axle combination. This limitation is not so serious for milk haulers as it is for other truckers. A frequent problem for haulers of dry freight is that an accidental load shift may make a legally loaded truck illegal by concentrating too much weight on one axle. This is not the case with a fluid load. Except in tanks with several compartments, the load distribution is always the same on all load-carrying axles.

Restrictive load limits are most serious when they are found in States which lie across the most direct routes for the movement of bulk milk. For example, Kentucky, with its low weight limits, lies between Wisconsin and the Southeast. Haulers of dry freight can run at reduced loads through restrictive States, but reduced loads of milk are impracticable due to a tendency for milk to churn in partial loads. As a consequence, it is necessary for the hauler of milk to have a wide variety of equipment on hand, so that full loads can be shipped (*39*, pp. 39–49).

The effect of highway load limits on transportation costs is illustrated by the schedule of shipping rates for one firm. The charge for a movement over a distance of 500 miles was 97 cents per hundredweight when 23,000 pounds were shipped in one load, and 87 cents per hundredweight for a load of 27,500 pounds.

Between some points larger loads could be moved by avoiding the States having the lowest load limits. The full effect of the lower load limit was felt only where the costs of increased mileage more than offset the savings from moving a larger load.

There are some limits to the benefits which would accrue in the long-distance movement of milk as a result of higher maximum load limits. Mostly these shipments are needed to supplement a milk plant's local sources. As the season progresses from surplus to deficit production, and later again to surplus, there are periods of varying length when the difference between daily receipts from local sources and daily sales at most plants is only a few thousand pounds. Emergency supplies during such periods would be received in the smallest practicable size of shipment. Where smaller shipments cause a higher charge per hundredweight, this factor could be more than offset by several advantages. A large shipment would involve storing fresh milk and rotating the stocks—a practice which brings extra costs and sometimes adverse effects on quality. Furthermore, a shipment larger than what is immediately needed may increase the proportion of milk which is consigned to low-value uses.

VEHICLE LICENSE FEES AND TAXES

Vehicle license fees and taxes are important items of expense for trucking milk.

Truckers moving interstate are generally able to take advantage of reciprocity agreements between the various States. In general, this means that a truck registered in one State can move into other States without having to pay registration fees in the other States. Since registration fees for large trucks are substantial in amount, this constitutes a great advantage. In many States, registration fees for large tractor, semitrailer combinations may be more than $500. It is not likely that a milk-transport truck which may be used interstate for only a few months during the year could bear the full cost of registration in all the States it might enter.

Most reciprocity agreements cover only registration fees. Incidental fees, fuel taxes, and other levies must be paid by the trucker. Unfortunately, there is little uniformity among the States as to the coverage of reciprocity agreements. A trucker based in one State may be able to operate in several States without registering his truck in those States while in others he may be forced to register.

At the present time, several States impose weight-distance taxes, which are generally not subject to reciprocity. Such a tax is calculated by a formula involving some combination of weight and distance. A vehicle designed for 50,000 pounds gross weight can be registered in New York for $293. If such a vehicle operated 50,000 miles at full or partial load in New York it would have to pay $850 in weight-distance taxes. In Georgia, which has no weight-distance tax, the registration fee for a tractor-trailer of this same size[39] would be $1,350. Milk haulers generally do not run as many miles per year as common carriers. Consequently, for a milk-transport truck, a ton-mile tax may not add as much to cost-per-mile as a high registration fee. For a truck registered in Georgia operating only a few months per year, the cost of registration would be much higher on a per-mile basis than it would be for a common carrier.

So long as reciprocity agreements are in force, a trucker can use his vehicle in other States intensively or only infrequently without paying additional fees. For example, a truck registered in Wisconsin at a fee of $680 could operate in George paying at most only a nominal fee for identification plates, plus the Georgia fuel tax.

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[39] In Georgia, fees for the truck tractor range from $250 to $1,000. Semitrailers are registered on the basis of empty weight. The exact total registration fee would depend on the specifications of a particular tractor-trailer combination. Along with some other States, Georgia registers trucks and truck tractors on the basis of the manufacturer's rated capacity of the vehicle (the manufacturer's estimate of the gross weight which the tractor can pull, including its own weight). This method of taxation assumes that the trucker selects a straight truck or a tractor the rated capacity of which approximates the intended gross weight of the straight truck or of the tractor-trailer combination. In practice, however, where the trucker operates a tractor in combination with a semitrailer, the gross weight of the combination may be only vaguely related to the rated capacity of the tractor. To some extent, it is also true that the gross weight of a straight truck may differ considerably from the manufacturer's rated capacity of the vehicle.

Other factors which increase the cost of milk hauling are: A high initial outlay for equipment and license fees is required for vehicles which are not intensively used throughout the year. This increases ton-mile costs.

The necessary emphasis on sanitation requires extraordinary care in selection of materials and in design and manufacture of equipment in comparison to bulk hauling of fluid products not used as food.

Perishability makes rapid movement of milk necessary and involves more rigid scheduling than is the case with less perishable commodities.

The very specialized nature of milk tanks limits their use in "back haul" operations. The ability to move a return load is an important cost-reducing item in trucking other agricultural products. In milk hauling, there usually is no suitable commodity available for back-haul, although there are occasional situations where orange juice, molasses, or other liquids are carried on the return trip.

Facts such as the above may have influenced the rates charged by milk-transport companies, but in none of the interviews with dairy company officials were excessive trucking fees and licenses cited as factors affecting the movement of milk. Kutish reported that a legal payload in Wisconsin lower than in Illinois places Wisconsin producers at a disadvantage in competition with Illinois producers for the Chicago market (*39*, p. 45).

The volume of fluid milk transported by rail is so small as to be almost insignificant, but rail rates may favor intrastate over interstate movements. Hillman et al., studying the Western States, pointed out that there were variations between intrastate and interstate railroad freight rates which favored intrastate movements. Such preferential rates existed in Montana, Nevada, and California (*35*, p. 64). In the present study, no inquiry was made as to the situation outside the western region.

GEOGRAPHIC PRICE STRUCTURE

The primary objective of the analysis of the geographic structure of milk prices in the United States was to determine in which markets prices were sufficiently high to provide an incentive for milk to be shipped from areas with lower milk prices. The principal interest was in identifying those markets with the highest relative prices so that a more intensive study of them could be made to determine whether or not restrictive economic or sanitary regulations were factors in the maintenance of prices.

For the purposes of this analysis, it was assumed that certain regulations regarding the marketing of milk would remain in effect. Specifically, four assumptions were made which bear directly on the results of the analysis. (1) It was assumed that beverage milk for consumption in fresh form would continue to be defined as a commodity. That is, market milk would be handled as such and it would not be reconstituted from manufactured products. (2) It was assumed that the sanitary regulations for the production and handling of fluid milk would remain stricter than for milk used in manufacturing products. The analysis itself assumes no particular standard—

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only that milk deemed suitable for human consumption in fresh form is the same at all geographic points. (3) The analysis does not assume elimination of minimum price regulations, but it does assume that neither the price regulations nor the administration of them interfere with the movement of milk among markets. (4) Continuation of the system of pricing milk according to its utilization is assumed.

Even under systems of administered pricing arbitrarily high class prices could not be maintained if dealers were free to seek alternative sources of supply. Accordingly, attention in the first portion of the analysis is directed toward dealers' buying prices for milk for fluid use (class I in most markets).

DEALER BUYING PRICES FOR FLUID USE

If milk of quality suitable for fluid use were free to move among markets without restrictions, it would be expected that dealers' buying prices of milk for fluid use would be related among markets in a logical pattern (*13*, *31*, *36*). A geographic price surface describing such a pattern would include one or more areas of lowest prices where more milk is produced than consumed. Prices would be expected to increase with distance from these areas toward large consuming centers. Even the possibility of moving milk from one market to another would tend to keep prices in line. Prices would differ among markets by the amount of transfer costs, of which the largest element is the cost of transportation.

As a first approximation it was assumed that dealers' buying prices would be related to prices in the area of greatest surplus "Grade A" [40] production centering in Wisconsin. They were expected to increase with distance from this area. Dealers' buying prices for milk for fluid use in 160 markets in all parts of the country were related to distance from Eau Claire, Wis., for the year beginning July 1953 by plotting on a scatter diagram. Eau Claire was selected from among several Wisconsin points which could have been used with equal validity to represent the area. Dealers' buying prices for "Grade A" milk at Wisconsin points are closely related because of the influence of the location differentials established by the Chicago Federal Milk Marketing Order.

Shortest highway mileage was used as a measure of distance because milk is now transported among markets chiefly by tank truck. Data pertaining to the years 1946 to 1950 show that the shipment of bulk milk between markets shifted from rail to truck and by 1950 most intermarket movements were by truck.[41]

The prices used in the analysis are average prices for the period July 1953 to June 1954 published in the Fluid Milk and Cream Report (*61*) and unpublished prices reported to the Agricultural Marketing Service. All prices were adjusted to 3.5 percent milk by applying the butterfat differential applicable in each case. They represent dealers' buying prices from producers. They are in practically all cases, "class" prices. That is, they are the rate at which dealers pay pro-

[40] The term "Grade A" is employed here and subsequently in this section to represent milk suitable for sale as fluid milk.

[41] Unpublished data obtained in 1951 by Lewis P. Jenkins, Bur. Agr. Econ., USDA, and Hugh L. Cook, Dept. Agr. Econ., Univ. of Wis.

ducers for that part of their receipts of milk which they dispose of in the form of fluid milk products. In the case of Chicago, Boston, New York, and New Orleans they represent prices paid for milk delivered to plants located at specified distances from the city. At all other points they are for milk delivered to plants in the city.

It is essential to the analysis that these prices be fully comparable. It is evident that milk ready for intermarket shipment would cost more than the dealers' buying prices since the milk would have been received, weighed, tested, cooled, standardized and loaded into tank trucks. A plant handling fee for these services would be added.[42] For example, the price to producers at Eau Claire is except for location comparable to the price to producers for milk delivered to plants in the 201–210 mile zone of the New York market. The majority of milk supplies for markets with zone quotations actually are first received at plants located some distance from those cities.

When zone price quotations were used in the analysis the distance was figured from Eau Claire to the base zone rather than to the city.

Preliminary graphic analysis indicated a relationship between class I prices and distances of markets from a Wisconsin point. Another major region of low prices appeared in northern New England and Upstate New York, and a third in the western United States, beyond the Rocky Mountains.

Prices in all of the far-western States were substantially below those which would be indicated by the price-distance relationship from Wisconsin. Furthermore, the geographic pattern of dealers' buying prices in the West was not related to any single area. Rather, there were several different areas of relatively intensive dairy production which correspond with areas of low prices. Some of the areas of production for the populous coastal cities are nearby. Even in the large cities on the Pacific coast most distant from western surplus areas, prices are apparently not sufficiently high to attract milk from the Midwest. However, this conclusion does not preclude the possibility of incentives existing for movement of milk within the region.

Prices in markets west of the Rockies were excluded from the analysis of prices in relation to distance from Wisconsin, because they were far below the level which would be necessary to stimulate imports of milk from the Midwest.

The low point on the price surface in northern New England and Upstate New York is in an area where a major part of the milk supplies for Boston and New York originate. Generally, dealers' buying prices in cities located in Vermont and Upstate New York were equal to or lower than the New York or Boston class I prices adjusted by location differential. In Vermont the minimum dealers' buying prices established by the Milk Control Board are set at the Boston blend price plus a small fixed premium. This price is considerably below the Boston class I price, adjusted for location.

Though prices in Vermont and Upstate New York were unusually low in relation to prices indicated by the price-distance relationship analysis, they are not prices at which milk is available for movement

[42] The effect of the 70 cents per hundred pounds above the class I prices which the Chicago order requires on sales out of the marketing area under certain conditions during the fall season is excluded from this analysis.

to other markets with classified pricing systems. They are the prices at which local dealers can induce producers to shift to the local market from pool plants.

Local dealers need carry little surplus because supplementary milk is readily available from excess supplies of handlers under the New York and Boston market-wide pools. These local buying prices do not provide a legitimate basis for comparison as long as a classified use pricing system is assumed. The most significant class price structure for fluid milk within the Northeast production area is that established by the major market orders.

Since prices for the major markets in the Northeast were observed to be related to distance from Wisconsin, they were retained in the analysis.

Supply-demand conditions within the northeastern region might dictate a class I price lower than that indicated by relationships with the Midwest. However, the Northeast has been in a deficit position with respect to fluid milk at times in the past decade. The relationship to Midwest prices plus transfer costs is of some practical significance, establishing a ceiling which prices in Eastern markets could not exceed without restrictive regulations.

Dealers' buying prices for fluid milk in 143 markets located east of the Rocky Mountains were related to distance from a Wisconsin point by straightline regression analysis (fig. 1). This procedure was used to achieve quickly the primary purpose of identifying markets with prices above average, taking location into account. Comprehensive current data on transportation and other transfer costs were not readily available, so it was not possible to develop a more refined analysis of prices at various locations.

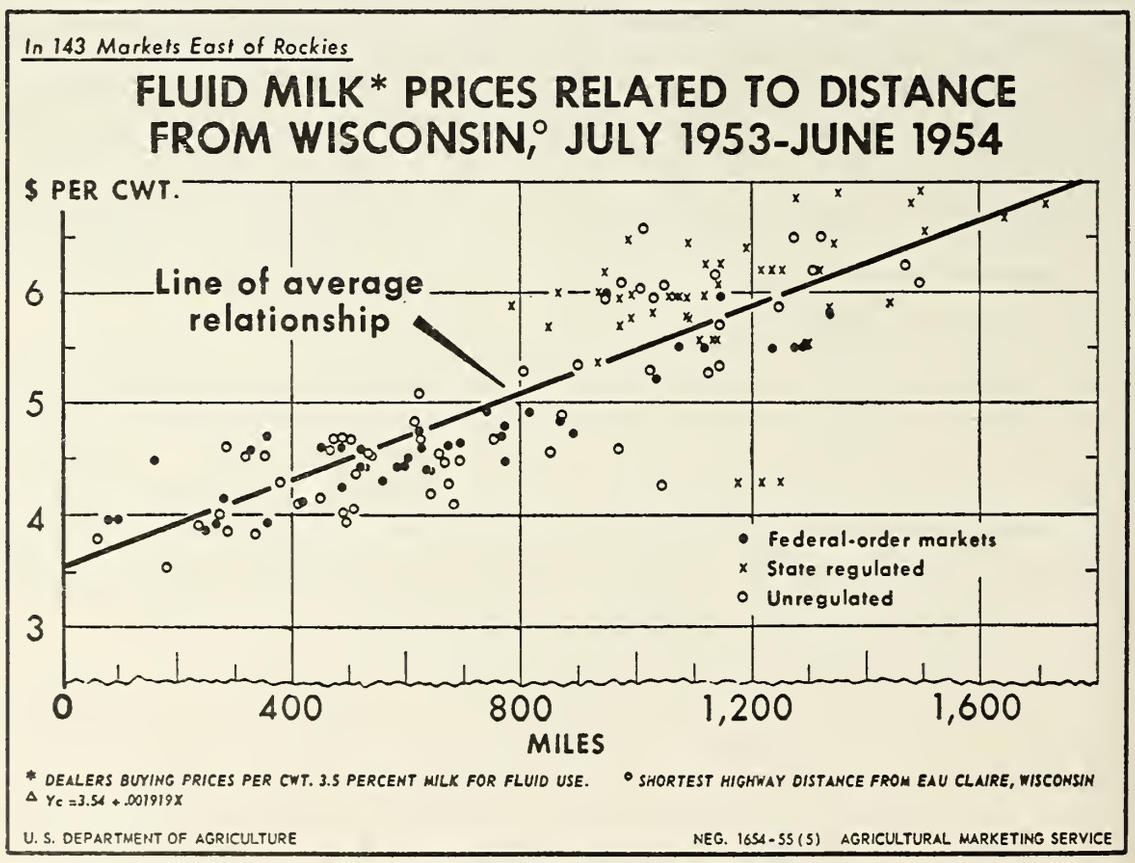

Figure 1

The regression of price on distance indicates a price of $3.54 at Eau Claire. This is one cent less than the average class I price established in the Eau Claire zone by the Chicago order. It is 45 cents above the average price paid farmers at 18 Midwest condenseries.

The analysis shows that the dealers' buying price for fluid milk increased an average of 1.92 cents per hundredweight per 10 miles increase in distance from the Wisconsin point.

The regression line could be considered most meaningful for this analysis if its slope approximated transportation and other transfer costs. While data on these costs are not entirely adequate, they afford some indication of the consistency of the slope of the regression line with approximate transfer costs.

The estimate of 1.92 cents agrees approximately with information from a limited number of schedules of rates actually charged by firms specializing in the tanking of milk between markets. Rates charged by four such firms doing a large volume of business ranged from 1.75 cents to about 2.0 cents per 10 miles distance.[43]

The analysis shows that a straight line regression fits the observed prices rather well, and that 75 percent of the variation in class I prices was associated with distance from a point in Wisconsin. (See appendix B, table 38.) Some decrease in transfer costs per mile as length of haul increased might have been expected due to the distributing fixed costs per trip over more miles. However, the rates charged by the 4 large firms were the same per mile regardless of the distance quoted up to 1,500 miles. The straight line approximation seems adequate for the limited purposes of this analysis.

The amount by which the actual dealers' buying prices are above the line of average relationship (regression line) is a measure of the amount of apparent price incentive for shipments of milk from lower priced producing areas. Those markets represented by dots the greatest vertical distance above the line are the ones most likely to attract imports of milk. It is recognized that there may be factors other than the restrictive effects of regulations, such as natural geographic barriers and the size, number, and relative strength of dealers and of producers' cooperatives, which may explain why prices in some of these markets depart from the average relationship. Regardless of this, the regression line serves as a useful reference for identifying markets for further study. Whether the slope of the regression is exactly right or not, the analysis isolates markets in which prices differ most from the average after taking location into account. When it is assumed that milk may move freely the price in a given market would be no more than a small amount higher than that indicated by the import point [44] unless it includes payment for additional marketing services. However, cities located in or near local surplus areas may have prices below those indicated by the regression analysis if local or regional supply-demand conditions warrant. Such places would also be potential sources of supplies for high priced markets.

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[43] Rates in effect January 1955.

[44] Price sufficiently high to provide an incentive for dealers to seek alternative sources of supply. In this analysis the import point is estimated from the regression of prices on distance from Wisconsin.

Dealers' buying prices for milk for fluid use are compared with prices calculated from the regression of dealers' buying prices on distance from a Wisconsin point (table 29).

The differences between actual and calculated dealers' buying prices for individual markets should be interpreted with caution. These results show only the extent which prices in each city depart from the average relationship of prices among markets considering distance from the Wisconsin surplus area.

The results of the analysis of dealers' buying prices may be illustrated by means of equal-price maps. A series of 3 such maps (figs. 2 and 3) picture the 3 basic steps in the analysis.

First, equal-price lines were drawn on an outline map of the United States (top of fig. 2) to show the geographic structure of Class I prices prevailing during the year ending June 1954. These lines are based on the actual dealers' buying prices in 160 markets. Construction of equal-price lines from a limited number of observations necessarily requires some interpolation. Consequently, the map is adequate to show the structure of prices in a general way but not for exact prices at specific points (for prices in individual markets refer back to table 29).

In the second step (bottom of fig. 2) equal-price lines representing a structure of prices based on distance from surplus supply areas were calculated from the results of the analysis of Class I prices in relation to distance from Wisconsin. Since this average relationship was shown to approximate actual transfer costs these lines represent the alternative price for milk which might be moved from alternative supply areas. Three alternative supply areas represented by basing points at Eau Claire, Wis., Seattle, Wash., and Fresno, Calif., were used in constructing the calculated equal-price lines.

A third map (fig. 3) was constructed to show in which areas actual prices differed from calculated prices, by how much they differed and whether actual prices were more or less than calculated prices. This comparison was made by superimposing the calculated equal-price lines on the map showing actual price lines and cross hatching to show the direction and amount of the differences.

The price structure for the area east of the Rockies was built up from an origin of $3.54 per hundred pounds of milk at a point in Wisconsin with equal price lines spaced at intervals of 46 cents per hundred pounds of milk (approximately equal to 1 cent per quart). In the far West the price structure was on a point located in the San Joaquin Valley in California using the price distance relationship derived from the regression analysis.

BLEND PRICES

An analysis of dealers' buying prices shows the possibilities for moving assembled milk among markets in bulk lots, but it does not show how producer prices are related. In order to show this, the relationship of blend prices among markets for which data were available was analyzed. This analysis would be expected to reveal any maladjustments among markets which would provide incentives for producers to shift from low-price to high-price markets. The relation-

TABLE 29.—*Dealers' buying prices for milk for fluid use, compared with prices calculated from regression of Class I price on shortest highway distance from Eau Claire, Wisconsin, July 1953–June 1954* [1]

Market	Dealers' buying price	Calculated price	Amount actual price exceeds or is less than calculated price
DEALERS' BUYING PRICES EXCEED CALCULATED PRICES			
	Per cwt.	*Per cwt.*	*Per cwt.*
District of Columbia	$6.56	$5.48	$1.08
Roanoke, Va. (S)	6.47	5.44	1.03
Savannah, Ga. (S)	6.84	5.98	.86
Pittsburgh, Pa. (S)	5.87	5.04	.83
Buffalo, N. Y. (S)	6.00	5.20	.80
Richmond, Va. (S)	6.44	5.64	.80
Jacksonville, Fla. (S)	6.90	6.14	.76
Colorado Springs, Colo	6.09	5.42	.67
Rochester, N. Y. (S)	6.00	5.33	.67
Duluth, Minn. (F)	4.48	3.85	.63
Denver, Colo	5.94	5.36	.58
Columbus, Ga. (S)	6.27	5.69	.58
Norfolk-Portsmouth, Va. (S)	6.40	5.83	.57
Baltimore, Md	6.03	5.47	.56
Asheville, N. C. (S)	5.95	5.40	.55
Birmingham, Ala. (S)	5.98	5.44	.54
Atlanta, Ga. (S)	6.27	5.74	.53
Fort Dodge, Iowa	4.60	4.09	.51
Johnstown, Pa. (S)	5.68	5.17	.51
Orlando, Fla. (S)	6.92	6.41	.51
Sioux City, Iowa (F)	4.70	4.23	.50
Houston, Tex	6.48	5.99	.49
Columbia, S. C	6.16	5.71	.45
Greenville, S. C	5.96	5.52	.44
Sioux Falls, S. Dak. (F)	4.56	4.17	.43
Winston-Salem, N. C. (S)	5.97	5.57	.40
Galveston, Tex	6.48	6.08	.40
Des Moines, Iowa	4.52	4.15	.37
Highpoint, N. C. (S)	5.96	5.60	.36
Concord, N. C. (S)	5.94	5.59	.35
New Haven, Conn. (S)	6.21	5.88	.33
Charlotte, N. C. (S)	5.95	5.63	.32
Newport, R. I. (S)	6.44	6.12	.32
Anniston, Ala. (S)	5.75	5.44	.31
Mobile, Ala. (S)	6.04	5.73	.31
Burlington, Iowa	4.52	4.22	.30
Reading, Pa. (S)	5.80	5.51	.29
Durham, N. C. (S)	5.97	5.69	.28
Hartford, Conn. (S)	6.21	5.94	.27
St. Paul, Minn. (F)	3.96	3.71	.26
Harrisburg, Pa. (S)	5.66	5.41	.25
Minneapolis, Minn. (F)	3.96	3.73	.23
Omaha, Nebr. (F)	4.62	4.40	.22
New Orleans, La. (61–70 mile zone) (F)	5.96	5.75	.21
Battle Creek, Mich	4.68	4.48	.20
Charleston, W. Va	5.27	5.08	.19
Kalamazoo, Mich	4.58	4.44	.17
Grand Rapids, Mich	4.66	4.50	.16
Lincoln, Nebr. (F)	4.62	4.47	.15
Albuquerque, N. Mex	6.19	6.04	.15
Winona, Minn	3.78	3.66	.12
Opelika, Ala. (S)	5.75	5.63	.12
Evansville, Ind	4.83	4.72	.11
Montgomery, Ala. (S)	5.75	5.64	.11
Providence, R. I. (S)	6.18	6.07	.11
Tampa, Fla. (S)	6.53	6.42	.11
Cheyenne, Wyo	5.36	5.27	.09
Rock Island, Ill. (F)	4.15	4.09	.06
St. Louis, Mo. (F)	4.59	4.54	.05
Aberdeen, S. Dak	4.31	4.27	.04
DEALERS' BUYING PRICES ARE LESS THAN CALCULATED PRICES			
Miami, Fla. (S)	6.80	6.82	.02
West Palm Beach, Fla. (S)	6.67	6.69	.02
Alexandria, La	5.70	5.74	.03
Wichita, Kans. (F)	4.92	4.96	.04
Lansing, Mich	4.53	4.57	.04
Cincinnati, Ohio (F)	4.69	4.74	.05
Charleston, S. C	5.85	5.93	.08
Philadelphia, Pa. (FS)	5.51	5.60	.09

Footnote at end of table.

TABLE 29.—*Dealers' buying prices for milk for fluid use, compared with prices calculated from regression of Class I price on shortest highway distance from Eau Claire, Wisconsin, July 1953–June 1954* [1]—Continued

Market	Dealers' buying price	Calculated price	Amount actual price exceeds or is less than calculated price
DEALERS' BUYING PRICES ARE LESS THAN CALCULATED PRICES—continued	*Per cwt.*	*Per cwt.*	*Per cwt.*
Beloit, Wis.	$3.91	$4.00	$0.09
Kansas City, Mo. (F)	4.43	4.55	.12
Camden-Trenton, N. J. (S)	5.54	5.66	.12
Chicago, Ill. (55–70 mile zone) (F)	3.91	4.05	.14
Louisville, Ky. (F)	4.60	4.74	.14
Indianapolis, Ind.	4.37	4.52	.15
New York, N. Y. (201–210 mile zone) (FS)	5.20	5.36	.16
Milwaukee, Wis. (F)	3.86	4.02	.16
Newark, N. J. (S)	5.54	5.71	.17
Atlantic City, N. J. (S)	5.54	5.72	.18
Grand Forks, N. Dak.	4.12	4.33	.21
Dayton, Ohio (F)	4.48	4.69	.21
Jackson, Miss.	5.30	5.51	.21
South Bend, Ind. (F)	4.12	4.34	.22
Cleveland, Ohio (F)	4.61	4.83	.22
Memphis, Tenn. (F)	4.38	5.10	.22
Detroit, Mich. (F)	4.46	4.69	.23
Fort Wayne, Ind. (F)	4.24	4.47	.23
Tulsa, Okla. (F)	4.79	5.03	.24
Canton, Ohio	4.63	4.87	.24
Topeka, Kans. (F)	4.43	4.67	.24
Kenosha, Wis.	3.84	4.09	.25
Springfield, Ill.	4.14	4.40	.26
Paducah, Ky. (F)	4.54	4.80	.26
Dallas-Ft. Worth, Tex. (F)	5.22	5.52	.30
Toledo, Ohio (F)	4.32	4.62	.30
Wheeling, W. Va.	4.68	4.99	.31
Gary, Ind. (F)	3.91	4.23	.32
El Paso, Tex.	6.09	6.41	.32
Fall River, Mass. (F)	5.78	6.10	.32
Huntington, W. Va. (F)	4.69	5.01	.32
Little Rock, Ark. (F)	4.88	5.21	.33
Columbus, Ohio (F)	3.42	4.77	.35
Fargo-Moorhead, N. Dak.	3.83	4.18	.35
Springfield, Mo. (F)	4.41	4.77	.36
Knoxville, Tenn. (F)	4.84	5.21	.37
Oshkosh, Wis.	3.51	3.89	.38
Springfield, Mass. (F)	5.50	5.91	.41
Albany, N. Y.	5.33	5.74	.41
Waco, Tex.	5.27	5.70	.43
Augusta-Portland, Maine (S)	5.88	6.31	.43
Worcester, Mass. (F)	5.50	6.00	.50
Concord, N. H. (S)	5.51	6.03	.52
Manchester-Nashua-Portsmouth N. H. (S)	5.51	6.03	.52
Lowell-Lawrence, Mass. (F)	5.50	6.02	.52
Oklahoma City, Okla. (F)	4.72	5.26	.54
Nashville, Tenn. (F)	4.48	5.03	.55
Alton, Ill.	3.92	4.49	.57
Akron, Ohio	4.27	4.84	.57
Elyria, Ohio	4.20	4.78	.58
Boston, Mass. (201–210 mile zone) (F)	4.98	5.68	.70
Lexington, Ky.	4.10	4.85	.75
Binghamton, N. Y.	4.27	5.54	1.27
Bennington, Vt. (S)	4.30	5.80	1.50
Bellows Falls, Vt. (S)	4.31	5.87	1.56
Burlington, Vt. (S)	4.31	5.94	1.63

[1] Excludes area west of Rocky Mountains and urban places of less than 25,000.

(F) Federal regulation.
(S) State regulation.

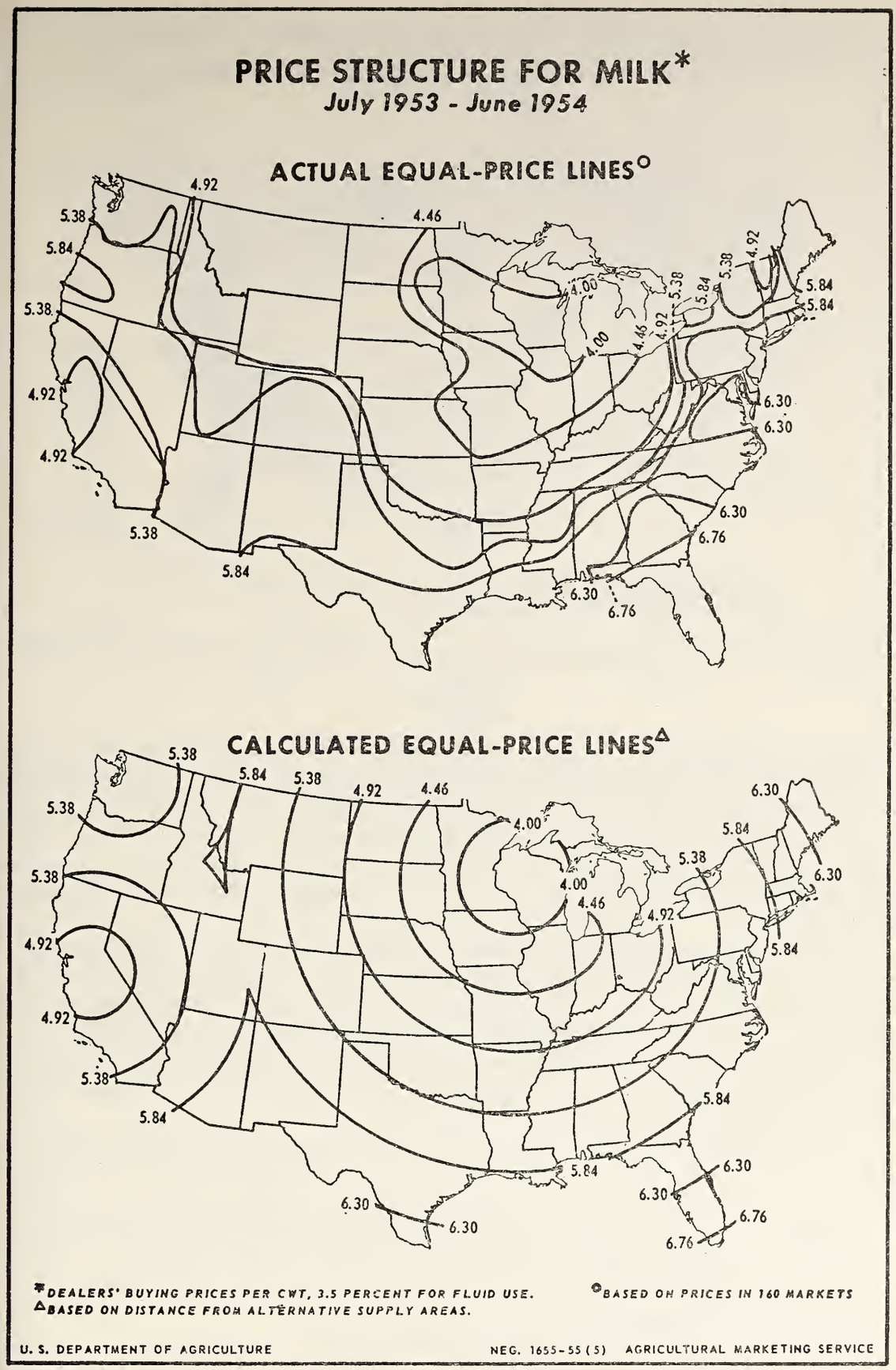

Figure 2

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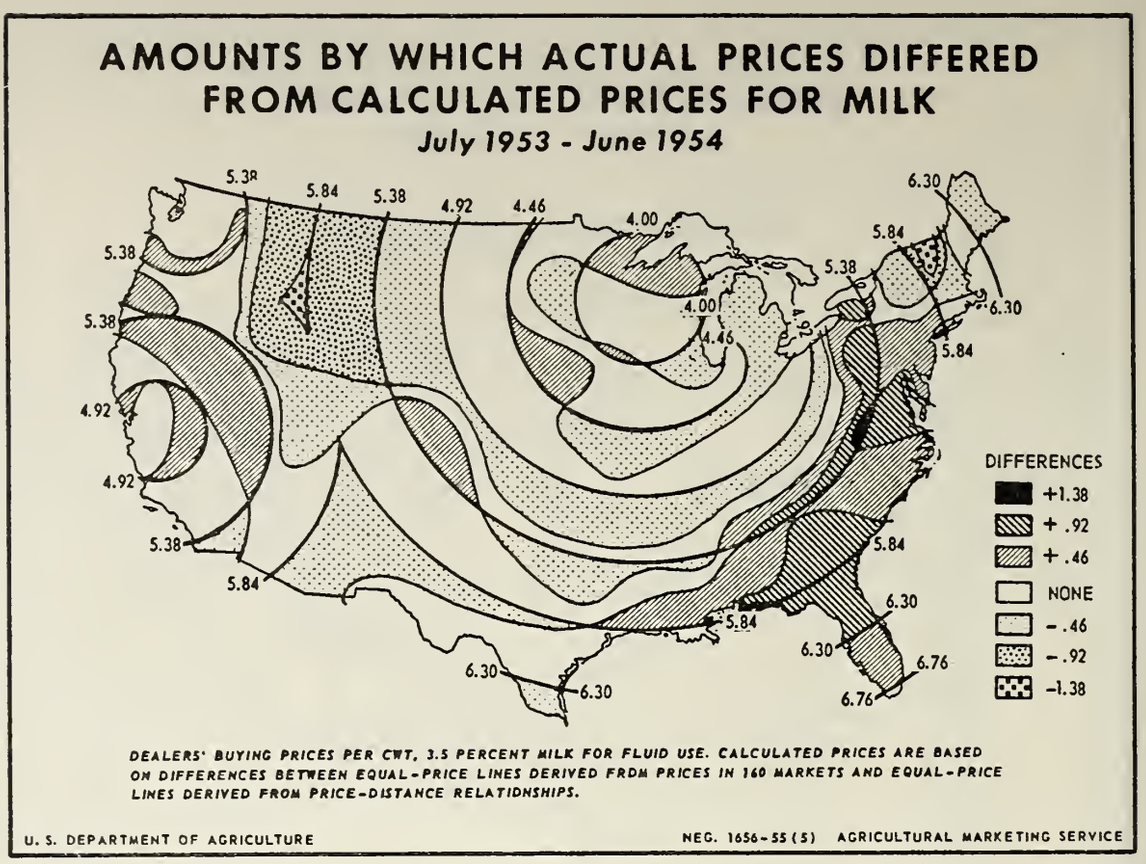

Figure 3

ships of blend prices to distance from the Wisconsin point were first analyzed in the same manner as dealers' buying prices. Blend prices were available only for Federal order markets and a limited number of the larger State-controlled and unregulated markets. The Fluid Milk and Cream Report was the source of the data, and the period covered was as in the case of the class I prices, July 1953 through June 1954.

The average line of relationship begins at a point 11 cents per hundredweight below the calculated dealers' buying price at Eau Claire, but the slope of the regression, 1.35 cents per 10 miles, is not as steep. This may be explained by the fact that the blend price is an average of the class I price, which increases rapidly with distance, and a surplus or manufacturing-use class price which increases very little with distance.

The markets represented by the six dots most distant from the regression line in figure 4 were also shown by the analysis of dealer buying prices above to be substantially above the average with one exception. These markets are large consuming centers with relatively little production in the immediate area. Four are located in State-controlled markets and two in markets in which there is no Government regulation of prices.

The differences between actual blend prices and prices calculated from the regression of blend prices on distance from Wisconsin for individual markets are presented in table 30. Qualifications similar to those applied to the interpretation of differences in dealers' buying

prices also apply to these results. In addition, if it is assumed that a classified pricing system is in general use, blend prices do not represent prices at which milk for fluid use is available for shipment to other markets.

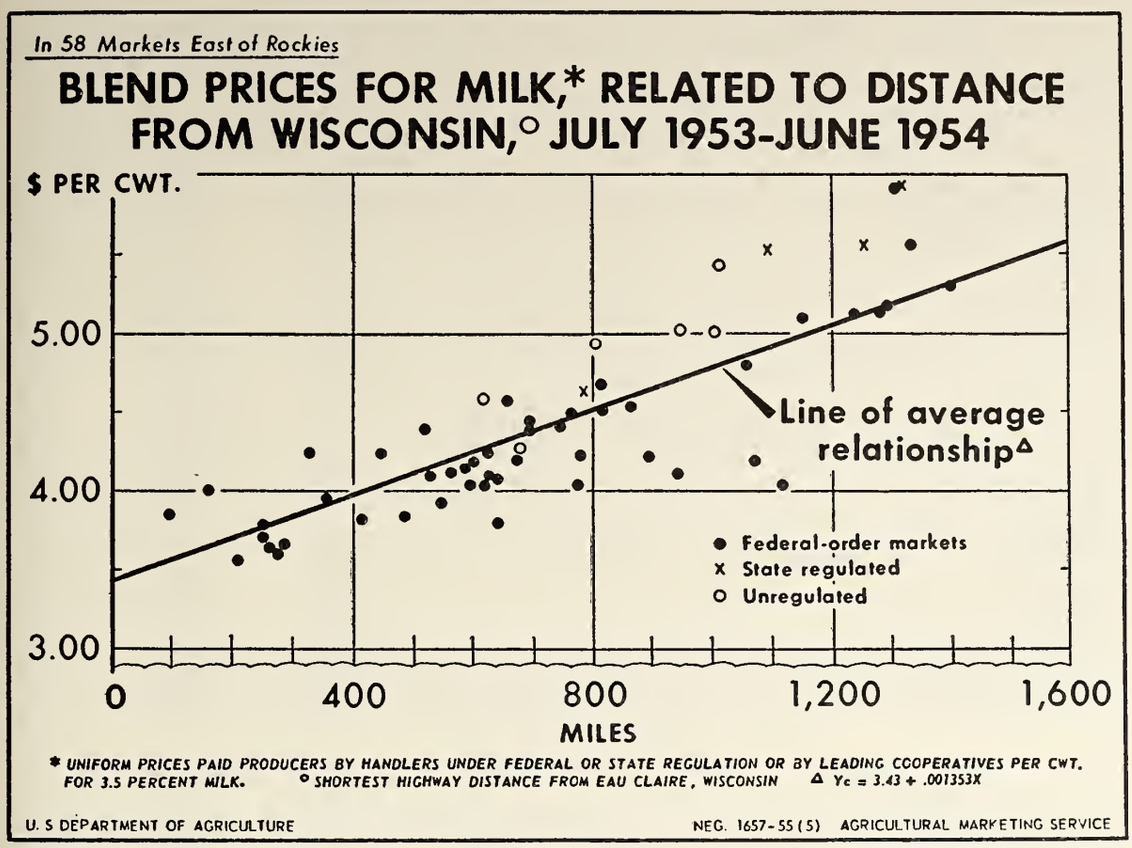

Figure 4

Even if arbitrarily high class prices maintained by regulations are in effect or sanitary regulations are used to exclude "other-source" milk, producers are likely to make adjustments by changing markets [45] or expanding output in such a way as to make blend prices competitive with nearby markets.

Adjustments in blend prices between markets are likely to take place through shifting of supplies between markets in areas where they compete for supplies. Prices in markets separated by some distance from each other may be related through a linked relationship by means of adjustments involving markets between them. Consequently, in building a theoretical pricing structure from a basing point, direction from the basing point is a relevant factor.

An example of this is the relationship between blend prices resulting from class prices established by Federal orders for the large market-wide pools from Chicago east. Average blend prices for July 1953–June 1954 at the base zones established by the Chicago, Detroit, Cleveland, and New York orders were expressed as differences from the Chicago blend prices f. o. b. Chicago. Prices for intermediate points

[45] Minimum price regulations do not usually prevent this except in States where producer licenses are required.

TABLE 30.—*Blend prices compared with prices calculated from regression of blend prices on shortest highway distance from Eau Claire, Wisconsin, July 1953–June 1954*

Market	Blend price	Calculated blend price	Amount actual price exceeds or is less than calculated price
BLEND PRICES EXCEED CALCULATED PRICES	*Per hundredweight*	*Per hundredweight*	*Per hundredweight*
San Antonio, Tex. (F)	$5.92	$5.20	$0.72
Providence, R. I. (S)	5.93	5.21	.72
Washington, D. C	5.44	4.80	.64
Richmond, Va. (S)	5.53	4.91	.62
Hartford, Conn.[1] (S)	5.55	5.12	.43
Charleston, W. Va	4.93	4.52	.41
Sioux Falls, S. Dak. (F)	4.24	3.87	.37
Duluth, Minn. (F)	4.01	3.65	.36
Fall River, Mass. (F)	5.56	5.23	.33
Evansville, Ind	4.59	4.26	.33
Denver, Colo	5.02	7.71	.31
Minneapolis, Minn. (F)	3.85	3.56	.29
Paducah, Ky. (F)	4.57	4.32	.25
St. Louis, Mo. (F)	4.38	4.13	.25
Baltimore, Md	5.00	4.79	.21
Omaha, Nebr. (F)	4.23	4.04	.19
Memphis, Tenn. (F)	4.68	4.53	.15
Pittsburgh, Pa. (S)	4.63	4.49	.14
New Orleans, La. (F) (61–70 mi. zone)	5.09	4.99	.10
Philadelphia, Pa. (F S)	4.92	4.88	.04
Sious City, Iowa (F)	3.95	3.91	.04
Huntington, W. Va. (F)	4.50	4.46	.04
Rockford, Ill. (F)	3.79	3.77	.02
Springfield, Mass. (F)	5.12	5.10	.02
Stark Co., Ohio (F)	4.38	4.37	.01
Canton, Ohio (F)	4.38	4.37	.01
BLEND PRICES ARE LESS THAN CALCULATED PRICES			
Lowell-Lawrence, Mass. (F)	5.17	5.18	.01
Central West, Tex. (F)	5.31	5.32	.01
Worcester, Mass. (F)	5.14	5.16	.02
Wichita, Kans. (F)	4.41	4.43	.02
Fort Smith, Ark. (F)	4.52	4.54	.02
Milwaukee, Wis. (F)	3.74	3.77	.03
Cincinnati, Ohio (F)	4.24	4.27	.03
Kansas City, Mo. (F)	4.10	4.14	.04
North Texas (F)	4.81	4.86	.05
Knoxville, Tenn. (F)	4.54	4.60	.06
Dayton, Ohio (F)	4.18	4.24	.06
Toledo, Ohio (F)	4.12	4.19	.07
Akron, Ohio (F)	4.27	4.35	.08
Topeka, Kans. (F)	4.14	4.22	.08
Cleveland, Ohio (F)	4.20	4.34	.14
Chicago, Ill. (F) (55–70 mile zone)	3.64	3.79	.15
Dubuque, Iowa (F)	3.56	3.72	.16
South Bend, Ind. (F)	3.82	3.99	.17
Quad Cities, Ill.-Iowa (F)	3.65	3.82	.17
Louisville, Ky. (F)	4.10	4.28	.18
Detroit, Mich. (F)	4.05	4.24	.19
Cedar Rapids, Iowa (F)	3.60	3.80	.20
Columbus, Ohio (F)	4.07	4.29	.22
Neosho Valley, Kans.-Mo. (F)	4.03	4.27	.24
Tulsa, Okla. (F)	4.23	4.48	.25
Lima, Ohio (F)	3.92	4.17	.25
Ft. Wayne, Ind. (F)	3.84	4.09	.25
Oklahoma City, Okla. (F)	4.22	4.64	.42
Nashville, Tenn. (F)	4.03	4.48	.45
Springfield, Mo. (F)	3.80	4.30	.50
New York, N. Y. (F S) (201–210 mile zone)	4.10	4.71	.61
Boston, Mass. (F) (201–210 mile zone)	4.03	4.94	.91

[1] Also includes New Haven and Bridgeport, Conn.
(F) Federal regulation.
(S) State regulation.

were derived by applying the location differentials specified in the respective Federal orders. The resulting lines were joined where lines from contiguous supply areas intersected. This "major markets" line (figure 5) shows how blend prices for these major marketwide pools increased with distance southeast from the outermost parts of the Chicago milkshed in Wisconsin to Chicago and from Chicago east to the Atlantic seaboard. This shows that blend prices in these markets increased less rapidly with distance from Wisconsin than the average of 58 markets (figure 4). This reflects indirectly the effects of another major production area in the northeast and the tendency of market-wide pools to attract supplies of milk. This line served as a useful reference for comparison of blend prices in other markets east of Chicago.

The blend price structure specified by the Boston Federal order rises from the heavy producing area in northern New England to a level at Boston nearly as high as that of the secondary markets in southern New England. Blend prices in the Boston market were related to the blend price structure of the other major marketwide pools east of Chicago in that blend prices for Boston and New York were approximately equal in the area north of New York City and northwest of Boston where the Boston and New York markets compete for supplies.

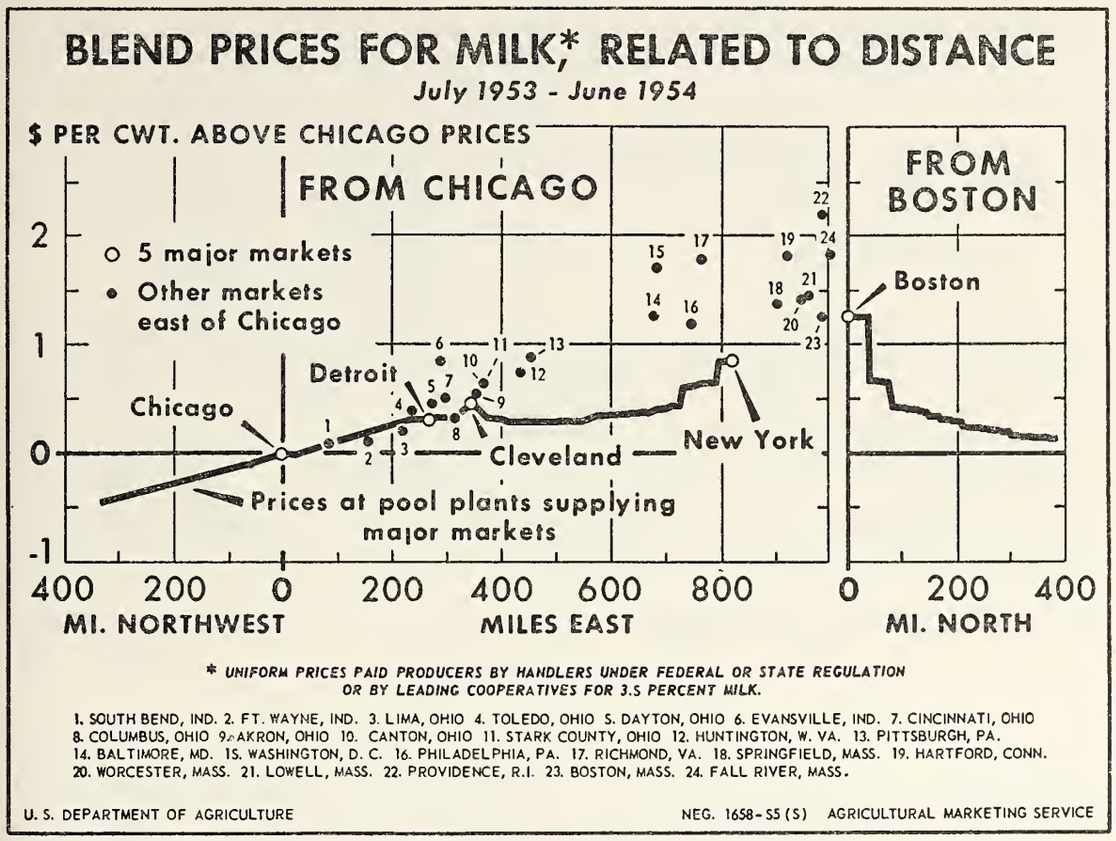

Figure 5

Blend prices f. o. b. plants in the marketing area for other markets situated between Wisconsin and the North Atlantic seacoast are compared in figure 6 with the line of relationship derived from the blend price structure in five major Federal order markets and with the line of

average relationship derived from the analysis of the relationship among blend prices in 58 markets.

Relationships between blend prices are too complicated to explain fully by a limited analysis. However, the analysis made of the blend price structure was adequate to achieve the principal objectives desired for this study. First, the markets which appeared to have relatively high blend prices were identified so that a study could be made of economic and sanitary regulations in effect. Second, the levels of blend prices prevailing represent the average prices received by producers supplying fluid markets. They indicate prices at which producers in the various markets are actually supplying present quantities of milk for fluid consumption. These data were utilized in analyzing the probable supply effects which would occur if the regulations were modified.

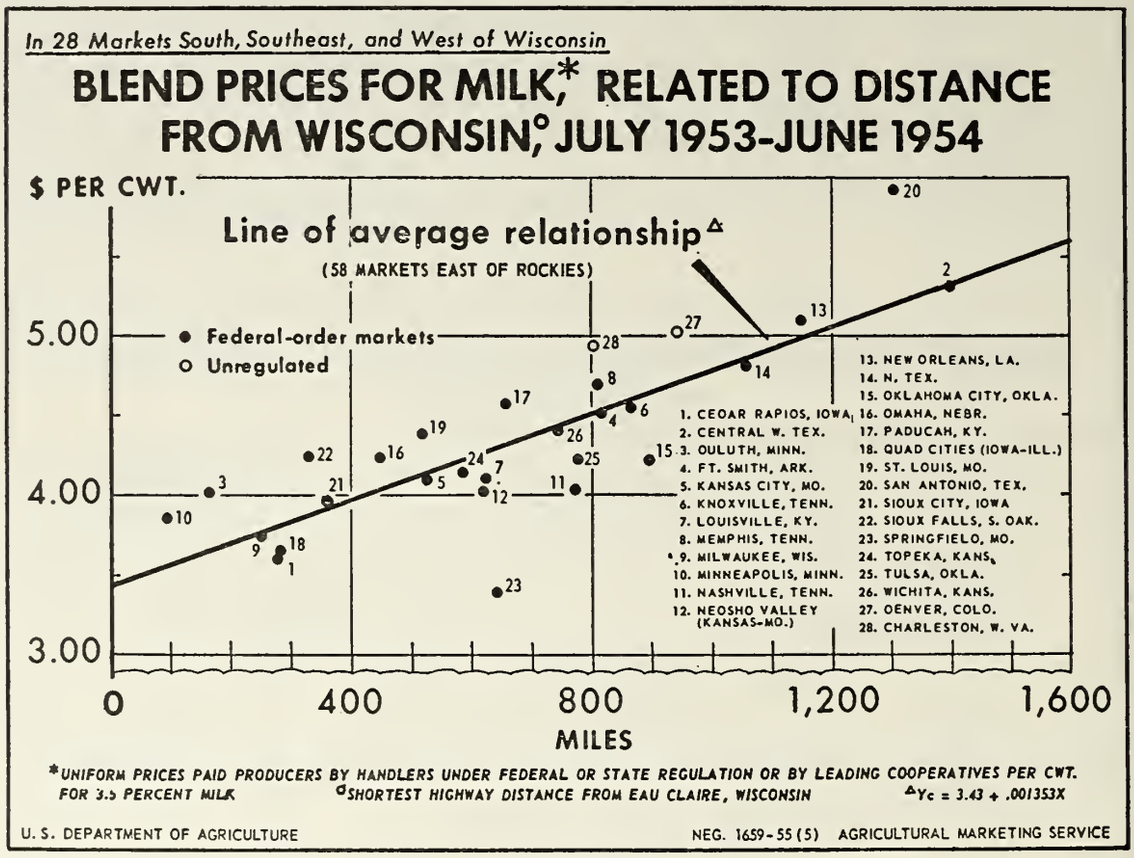

Figure 6

PRICE AND QUANTITY CHANGES UNDER MODIFIED REGULATIONS

EFFECTS IN 14 CITIES

Estimates of the probable economic effects of modifying economic and sanitary regulations so as to minimize restrictions on the movement and merchandising of milk were first made for 14 cities.[46] The procedure used in arriving at these estimates was as follows:

On the basis of results of the analysis of dealers' buying prices 14

[46] Buffalo, N. Y., Rochester, N. Y., Baltimore, Md., Washington, D. C., Richmond, Va., Roanoke, Va., Savannah, Ga, Jacksonville, Fla., Atlanta, Ga, Birmingham, Ala., Duluth, Minn., Sioux City, Iowa, Denver, Colo., and Pittsburgh Pa.

of the largest cities among those in which dealers' buying prices were highest above calculated prices were selected for first hand study. Facts learned from interviews obtained in these cities plus a review of other sources of information concerning the markets were used as the basis for estimating the change in prices that might result from relaxing unduly restrictive regulations. This might be more or less than the amount indicated by the difference between actual prices and prices calculated on the basis of distance from Wisconsin. The factors considered with respect to each market were degree of isolation from other markets, marketing services included in the price, whether the quoted price actually covered all sales in the market,[47] comparative strength of producers' organizations, aggressiveness displayed by existing milk dealers in the market and the capacity of potential alternative supply areas. These factors were reviewed by a group of dairy economists including the persons who conducted the interviews secured in all areas of the country. The calculated prices were modified in some cases by the consensus reached through this procedure.

The weighted average[48] of the differences between actual dealers' buying prices and calculated prices based on distance from Wisconsin for these 14 markets was 78 cents per hundred pounds of 3.5 percent milk.

With allowances made for institutional factors in the markets and marketing services included in the quoted prices it was estimated that with modifications of existing regulations, economic or sanitary, dealers' buying prices for fluid milk would decline an average of 72 cents per hundred pounds of milk. For an estimated 2.7 billion pounds of milk this is a total reduction of over $19 million per year. This would represent an average savings of 1.8 cents per quart if passed on to the consumers affected.

EXTENSION OF THE ANALYSIS TO UNITED STATES

In the next step of the analysis a list was made of other cities over 25,000 population in which the price appeared to be affected by restrictive regulations. Data from published sources, the personal interviews, the price analysis and the survey of health officers were used to derive this list.

In the light of the information thus obtained each city in which dealers' buying prices exceeded calculated prices was considered with respect to the factors used in modifying the analysis for the 14 cities. Taking one State at a time, the resulting estimated price adjustments

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[47] In a few markets with base rating plans all milk for class I sales is not always bought at the base price, some markets permit limited use of nonfat dry milk solids in certain fluid milk products, and some markets are unsuccessful in controlling prices of out-of-State milk.

[48] Prices were weighted by estimated consumption of fluid milk in each market. The population of the area most nearly approximating the population of the market for 1950 was adjusted by applying the population increases experienced in each State from 1950 to 1954. The adjusted 1954 population figure was used in conjunction with estimates of per capita consumption (*51*) to arrive at a quantity weight for each market.

which might be expected with modification of restrictions [49] were weighted by the population of each city of 25,000 population or more in the State to arrive at estimated State average price changes. The State average price differences were weighted by quantities obtained by the product of State nonfarm population and estimated State per capita consumption to arrive at regional and national estimates. In States in which prices of only some cities were affected by regulations the populations of only those cities, rather than total nonfarm population in the State, were used to arrive at quantities of milk affected.

A summary of the estimates obtained from this procedure shows that changes in economic and sanitary regulations restricting the movement of milk would be expected to result in a reduction in dealers' buying prices of 48 cents per hundred pounds of milk in the markets affected (table 31). The estimated quantity of milk affected by regulations restricting movement, 11.8 billion pounds annually, is about one-fourth of the estimated 46.7 billion pounds of fluid milk consumed by the nonfarm population in 1954. If an equivalent change (1 cent per quart) were made in retail prices, these modifications would result in savings to consumers in the affected markets of about $57 million annually.

TABLE 31.—*Effect of modification of economic and sanitary regulations restricting movement of milk for fluid use on dealers' buying prices and savings to consumers in affected markets, short run* [1]

Area [2]	Consumption [3]	Quantity of milk affected	Reduction in price per hundredweight	Savings to consumers [3]
	Billion pounds	*Billion pounds*	*Dollars*	*Million dollars*
East	17	6.1	0.59	35.7
Midwest	14	1.5	.18	2.6
South	8	3.4	.46	15.5
West [5]	8	.8	.39	3.3
Total	47	11.8	.48	57.2

[1] Short-run assumptions: (1) No supply response; (2) marketing margin constant.
[2] See appendix C, for list of States included in each area.
[3] Approximate consumption estimated by calculating the proportion of total nonfarm consumption for each area from estimates of nonfarm consumption of fluid milk and cream by States in 1944 (*51*) and applying these percentages to 1954 total nonfarm consumption. An alternative method which recognizes differences in changes in nonfarm population by weighting estimated per capita consumption in 1944 by estimated nonfarm population in July 1, 1954, and adjusting to the 1954 level of consumption yields the same results when rounded to billions of pounds.
[4] Computed from unrounded numbers.
[5] Includes Pacific, Mountain, and Plains.

For the United States as a whole, this estimated change in price expected from a modification of the regulations would average about ¼ cent per quart on the total quantity of fluid milk consumed by the nonfarm population.

[49] It was considered that restrictions would be modified in accordance with the assumptions stated previously.

Consumption Effects

On the basis of studies of the relationship between changes in milk prices and associated changes in milk consumption it would be expected that milk consumption would increase by a smaller percentage than the estimated decrease in milk prices (*10*, *11*, *15*, *27*, *37*, *40*, *53*, *78*). The decrease in milk prices which might be expected with a modification of the regulations is in the range of 4 to 5 percent at retail. It seems reasonable to assume that these changes would be passed on to the consumer because an analysis made of recent changes in milk processing and distribution costs showed that while they increased in 1955 as compared with the previous year they were relatively stable in the latter part of the year. A change in retail prices of this magnitude would be expected to result in a change in milk sales of not more than about 2 percent in the affected markets. This would indicate an increase in fluid milk sales of about 240 million pounds annually. Taking the reduced average dealers' buying price for the cities in which prices would decline as the value of milk for fluid use and the United States average condensery price as its alternative use value, the increase in sales would add about 6 million dollars to producers' incomes as a part offset to the 57 million dollars reduction from lower class I prices.

This estimate of effects on consumption from modifying regulations makes no allowances for long run response of consumption to price, which might be greater than in the short run, nor does it include any allowance for the freer use of merchandising techniques.

Supply Effects

If modification in the regulations were accompanied by the changes in dealers' buying prices as estimated above, changes in supply would probably be negligible at first because of the time necessary for producers to make adjustments in production. Over a period of time there would probably be some supply effects which might be substantial in certain areas but would likely be small in the aggregate.

Changes in producer prices per hundred pounds of milk would generally be less than changes in dealers' buying prices because of the effect of blending of prices for class I utilization with prices for milk in lower class utilization. Thus the amount of change reflected in prices to producers depends in part on the present proportion of class I utilization of producer milk. In markets with class I utilization nearly equal to producer receipts, prices to producers would reflect nearly all of the change in dealers' buying price. However, in most major markets class I utilization on a year round basis is in the range of 60 to 70 percent of producer receipts. At such a level of class I utilization the decline in blend prices to producers associated with a decline in dealers' buying price of 48 cents per hundred pounds would be about 30 cents per hundred pounds. Most of the markets affected are located in the East and South. The proportion of class I utilization and conditions in the producing areas supplying these markets vary considerably. These factors make it difficult to predict the amount of supply response which might occur with a change in the

regulations. According to estimates based on analyses of price-quantity series the change in aggregate supply would probably not exceed 1 or 2 percent.

There is some indirect evidence at hand to support the conclusion that the aggregate supply response would probably be small.

(1) Some major producing areas such as the New York and Boston 201–210-mile and more distant zones in the East are presently supplying milk for fluid use at less than some areas in the Midwest.

(2) Marketings of milk and cream by farmers have been increasing more rapidly in recent years in the East and South than in other regions of the country.[50]

(3) In the East which normally produces little manufactured dairy products except from "surplus" fluid milk, the proportion of the milk equivalent of milk and cream used in manufactured dairy products other than ice cream has increased slightly in the last few years (Appendix table 40). From 1935 to 1939 this percentage ranged from 10.3 to 10.6 percent. It increased during World War II to a maximum of 13.6 percent in 1943 and dropped to a low of 7.6 in 1946. In 1953 the figure was 11.6 percent. It appears from this that the East could absorb perhaps a 1½ percent change in fluid milk utilization without changing the proportion that manufactured dairy products exclusive of ice cream are of milk and cream marketings from the level of the thirties.

There has been a rising trend in manufactured dairy products including ice cream as a proportion of milk and cream marketings in the East (Appendix table 41). These figures reflect the growth in ice cream production in recent years. This trend is in contrast to that in the other regions of the country where the proportion of milk manufactured has tended to decline during the past 20 years.

However, the milk equivalent of milk and cream manufactured as a percentage of milk and cream marketings turned slightly upward in the last 2 or 3 years except in the Midwest where it was steady. The reciprocal of these percentages is an approximate measure of fluid milk utilization in the various regions.[51] Therefore, it seems reasonable to conclude that a small increase in fluid milk utilization which might be brought about by a change in the regulations could occur without increasing the proportion of milk used as fluid milk within the regions above that prevailing in the first part of this decade. Furthermore, if there is any trend in the proportion of milk suitable for consumption as fluid milk, it is in the direction of larger proportion than in former years.

Milk Movements

It is concluded from these analyses that a modification of economic and sanitary regulations to allow more freedom for milk to move among markets would probably not result in any large scale interregional movements.

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[50] See table 39 appendix C for the data supporting this statement.

[51] These data neglect inter-regional movements of milk and cream. However, the area boundaries were drawn so as to minimize their effect and the distortion is believed to be unimportant for evaluation of trends.

Instead the main effects would probably be adjustments in price levels in markets supplying about one-fourth of the milk for fluid consumption by the nonfarm population and a relatively small increase in fluid milk consumption.

Though the aggregate movement might not change much there would be some markets which would attract inshipments particularly in the deficit season. In considering where such shipments might originate it should be recalled that the regression analysis of dealers' buying prices indicated several areas with dealers' buying prices lower than the calculated prices. These areas are potential sources of supply, and modification in the regulations might raise prices in these areas if outward movements develop.

Income Effects

Modification of economic and sanitary regulations to permit freer movement of milk among markets would be expected to reduce the incomes of producers supplying sheltered markets and raise the incomes of other producers in alternate supply areas. Whether the decline in income experienced by producers supplying markets in which dealers' buying prices would decline would be fully offset by increases in income by other producers depends on the willingness of producers now supplying protected markets to produce milk at lower prices and on the amount of increase in class I utilization (consumption of fluid milk) which would occur in those markets. The combined effect of decreases in supply and increases in consumption would raise the percentages of class I utilization. This in turn would raise the blend price and partially offset the effect of the decline in dealers' buying prices (class I) on blend prices.

The incomes of producers in alternative supply areas would increase if their milk were used to replace or supplement "locally" produced milk. Whether the small increase in milk movements which seem likely to develop if regulations were modified would be large enough to force adjustments in class prices in these areas depends on the supply situation. Movements would be most likely to occur during the season of lowest production when class I utilization is relatively high. Then a relatively small movement or even the possibility of such movement might affect class prices quickly. On the other hand, when supplies are plentiful a small movement could take place without raising class prices. In either case to the extent movements increase, class I utilization and blend prices would be higher. This shift in income would probably not be large in view of the conclusion that increases in interregional movement would not be substantial.

ELIMINATION OF MILK PRICE CONTROL IN OREGON

An opportunity to compare the estimates of the effects of regulations on milk prices with actual experience occurred when Oregon voted to eliminate State milk controls on dealers' buying and resale prices in November 1954. The changes in milk prices in Portland, Oreg., which took place after this decision confirm the estimates made by analysis of prices while milk control was in effect.

There are several low-priced surplus areas in the region west of the

Rocky Mountains, from which an alternative price for Portland could be built up. Portland itself is relatively near a milk producing area on the Pacific coast so that it is possible that the local supply-demand balance would be the governing factor.

In the analysis, alternate basing points were selected at Sacramento, Calif., Seattle, Wash., and Boise, Idaho. Calculated prices for Portland were derived by adding estimated transfer costs to the observed prices at the basing points (table 32). The results show that the prevailing prices in Portland for the year ending June 1954 exceeded calculated prices based on Seattle and Boise by 55 and 79 cents per hundred pounds, respectively. Actual Portland prices were 20 cents per hundred pounds below the calculated price based on Sacramento. Therefore, it appeared that in the absence of controls Portland prices would decline by at least 55 cents per hundred pounds and possibly more. The effect of the price level in Seattle seemed more relevant than that of Boise because supply-demand conditions in Seattle may be more nearly like those in the vicinity of Portland. Thus, the Portland prices might decline as much as 91 cents to the same level as Seattle.

TABLE 32.—*Calculated dealers' buying price at Portland, Oreg., with allowance for transfer costs from selected basing points, July 1953–June 1954*

[Per hundredweight]

Basing point	Price at basing point	Calculated transfer costs	Calculated price at Portland	Price at Portland	Difference-actual and calculated prices at Portland
Seattle, Wash	$4.87	$0.36	$5.23	$5.78	$+0.55
Sacramento, Calif	4.80	1.18	5.98	5.78	−.20
Boise, Idaho	4.07	.92	4.99	5.78	+.79

During the 5 months following abolition of milk price controls (November 1954–March 1955), dealers' buying prices in Portland were only 5 cents per hundred pounds above Seattle, compared with 87 cents per hundred pounds above in the same period a year earlier, and 55 cents per hundred pounds above the prices in effect just before decontrol.

Dealers' buying prices in Portland also declined relative to San Francisco. From November 1954 to March 1955, they were 20 cents per hundred pounds above San Francisco compared with 64 cents above during the 4 months preceding decontrol.

The price decline from the 1953–54 level actually experienced in Portland when milk control was dropped exceeded the minimum amount predicted by the price analysis by about 40 cents per hundredweight. Some of this adjustment was made while the milk control law was still in effect (table 33). The drop approximated the maximum amount predicted because the forces which brought about this price change were probably mostly local in character. The net result was an adjustment of the Portland prices to the same level as Seattle. Though the changes in milk prices associated with the elimination of milk control in Oregon and the system of restricted bases resulted

from freer movement within the State rather than importation of milk from alternative supply areas, the results demonstrate the ability of the price analysis to identify markets with dealers' buying prices above a reasonable relationship with other markets and to predict the amount of change expected from the modifying regulations. These results give support to the relevance of the estimates of price changes expected if the regulations were modified in other markets.

TABLE 33.—*Relationship of dealers' buying prices for fluid milk in Portland, Oreg., to prices in Seattle, Wash., and San Francisco, Calif., selected periods before and after elimination of State milk control of prices*

[Per hundredweight]

Period	Portland exceeds Seattle	Portland exceeds San Francisco
Under milk control:		
July 1953–June 1954	$+0.91	$+0.81
July–October 1953	+.96	+.66
July–October 1954	+.55	+.64
November 1953–March 1954	+.87	+.84
No milk control:		
November 1954–March 1955	+.05	+.20

The Oregon price-control law also provided for establishment of resale prices. A comparison of differences in retail prices between Portland and Seattle and San Francisco shows that the spread in retail prices between Portland and the other cities began to narrow before milk control expired, but that it declined further afterwards (table 34).

Dealers' buying prices relative to Seattle were 86 cents per hundred pounds less than in 1953–54 and relative to San Francisco were 61 cents per hundred pounds less. From July–October 1954 to November 1954–March 1955 the difference relative to Seattle declined 50 cents and relative to San Francisco dropped 44 cents.[52]

The average retail price of milk in Portland in March 1955 was 2 cents per quart less relative to Seattle and 0.6 cent per quart less relative to San Francisco than in July 1953–June 1954.

This analysis indicates that the decline in dealers' buying prices associated with elimination of State milk control in Portland, Oreg., was reflected in a corresponding decline in retail prices in Portland. The change in retail prices in Portland is understated slightly due to the increase in the discount allowance for volume purchases on home delivery routes. This occurred through the introduction of wider store differentials in Portland. Average retail prices in Portland, Seattle, and San Francisco were about the same in March 1955. Dealers' buying prices in San Francisco were slightly higher than in Portland and Seattle.

[52] 46 cents per hundred pounds is equivalent to 1 cent per quart.

TABLE 34.—*Differences between retail prices in Portland, Oreg., and in Seattle and San Francisco, selected periods before and after elimination of State milk control*

[Cents per quart]

Period	Portland exceeds Seattle			Portland exceeds San Francisco		
	Home delivery	Quarts in stores	½ gallon in stores	Home delivery	Quarts in stores	½ gallon in stores
Under milk control:						
Average—June 1953–July 1954	0.5	1.5	3.0	−.1	0.9	0.9
October 1954	0	1.5	1.3	0	1.5	1.3
No milk control:						
November 1954	0	−.5	−1.0	0	−.5	−1.0
March 1955	0	−.7	−.5	0	−.7	−.5
	AVERAGES [1]					
Under milk control:						
Average—June 1953–July 1954	----------	2.0	----------	----------	0.6	----------
October 1954	----------	.5	----------	----------	.5	----------
No milk control:						
November 1954	----------	.1	----------	----------	.1	----------
March 1955	----------	0	----------	----------	0	----------

[1] The survey of milk sales in 1948, conducted by the Bureau of Labor Statistics, shows that substantially more milk was then sold through stores in Seattle and San Francisco than in Portland. (*62*) Retail prices prevailing in the three cities were weighted by the percentages of store and home delivery sales revealed by the 1948 survey, to estimate the average change in retail prices in Portland, Seattle, and San Francisco. This comparison minimizes the differences between Portland and the other cities because the trend since 1948 has generally been toward more sales through stores. Furthermore, the introduction of a wider store differential in Portland would be expected to increase the proportion of store sales.

DIFFICULTIES IN THE WAY OF REMOVING RESTRICTIONS

The preceding pages have dealt primarily with the restrictive aspects of the various regulations. Possibly the emphasis has left an exaggerated impression of the importance of the restrictive aspects of the regulations as compared with their admitted worthy objectives. The chief problem which authorities have in devising regulations is to accomplish their worthy objectives with a minimum burden on trade. A number of conditions make this difficult. The large number of separate jurisdictions, and the difficulty and complexity of the economic problems are particularly important. Some initiative toward reducing undue burdens may be taken by farmers, milk dealers and others affected by the regulations. They may appear at hearings on proposals for enacting, issuing, or amending laws or regulations and they may take legal action to contest questionable requirements.

LACK OF UNIFORMITY

Reference has been made to the lack of objective criteria for the precise value of many sanitary standards. Similar observations could be made concerning truck regulations, etc. Intensive research may be a means of developing criteria in some such instances, although the necessary work may be difficult and costly. Examples of such work are the studies of the National Research Council (*25*), and the Doane Agricultural Service (*30*) carried out under contract with the United States Department of Agriculture. In other cases, the solutions may lie in greater efforts at voluntary consultation

and collaboration among the separate agencies. The National Conference on Interstate Milk Shipments is an example of a voluntary effort to reach agreement on sanitary standards.

Divergent views as to what standards are most appropriate may also spring from divergent technical backgrounds of responsible officials. Presumably, a group of sanitary officials with uniform and thorough training in the technology and economics of the dairy industry might reach a common understanding more easily than a diverse group whose ideas reflect varied backgrounds of training in medicine, veterinary science, and public health.

Public officials may support restrictive regulations because they are particularly aware of and responsive to the immediate economic advantage of trade groups within their jurisdictions. They may at the same time be less aware of, or concerned with, the economic burdens which their regulations indirectly place on consumers within their jurisdictions. When a health officer insists on differentiating his regulations significantly from those of adjoining or distant jurisdictions the effect is to retard the shifting of producers among markets in response to differences in price, and to deprive the consumers in his jurisdiction of the price advantages of free movement.

Another cause of differences among the sanitary regulations of different jurisdictions is the uneven rate of progress toward their goals. Several cities and States visited in connection with this report were either about to revise or had only recently revised their sanitary regulations. Time is usually required for dairy farms and plants to be brought into compliance, especially where there is a material change in standards for buildings, equipment or herd health. For example, in relatively few cities are all dairy herds on approved farms participating in a recognized Brucellosis control program. Cities whose regular milk supplies comply with such a requirement are justified in discriminating against sources which have not placed their herds under control for this disease.

PRICE INSTABILITY

Restrictive sanitary regulations are to be deplored where they tend to protect prices at excessive levels. But it should be recognized that prices paid to producers for milk for fluid use appear to be inherently unstable. If restrictions served merely to snub unstabilizing transactions, it would be difficult to prove that the restrictions were undesirable.

Incentives to engage in such transactions (for example, to "buy at the blend and sell at class I") are almost always present. To producers in an area protected by a restrictive regulation there may be little apparent difference between the usual pressure to circumvent classified pricing and the pressure to take advantage of a class price that is far above the "import joint." During some interviews for this study, representatives of producer groups conceded that there were limits to the prices that could be maintained with existing regulations—that "too high" a price would lead to a breakdown of the regulation.

Price instability, thus, impelled producers to supplement their bargaining efforts with whatever other means may have been available. Those that came first to hand were municipal powers, chiefly the health regulations. If these turned out to be restrictive solely as a result of the public health ideas of the local health officer, producers and distributors were grateful. If the health officer appeared to be unduly lenient to out-of-town supplies, he would be reminded of the desirability of keeping as much trade as possible in the community.

At one time—it was particularly evident in New England in the 1920's—municipal sanitary restrictions were an important weapon against exploitative milk marketing. But when more direct means of dealing with pricing problems were needed, State action began to supersede municipal action. Several things then happened. State price regulation had an Achilles heel in the commerce clause of the Federal Constitution, for price regulations could not be enforced against out-of-State purchases. State health regulations and other devices were utilized to minimize the inflow of unpriced, out-of-State milk. Eventually, pressure developed for the freest possible flow of milk within the State in order to keep the need for out-of-State milk to a minimum.

Price instability, then, has been a factor in the development of restrictive regulations. But because of price instability it is unacceptable simply to abolish restrictions without making available adequate measures for needed price regulation—either Federal orders or properly coordinated State controls.

INDUSTRY INITIATIVE

The intermarket movement of milk in bulk demonstrates only partly a degree of freedom from regulatory restrictions. Some of this movement occurs when there are shortages of milk from local sources, and local regulations are waived temporarily. For the same reason, removing restrictive regulations might add very little to the total volume of intermarket movement, since there is no reason to suppose that this would materially increase the frequency or duration of local shortages.

It appears that restrictive regulations have deprived no one of milk that they were able and willing to pay for. On the other hand, the price in some markets appears to have been higher than needed to obtain pure and wholesome milk from other than local sources. Had milk been free to move, prices would have tended to become adjusted to levels which would offer no incentive for milk to move.

One observer has commented that, "there are no undue restrictions which would stand if leaned against." One question to be answered is, if prices behind restrictions in any market have been so high as to make inshipments attractive, why have the restrictions not been challenged, or "leaned against."

To induce anyone to challenge a restrictive regulation there must be a prospective gain to offset the cost of the challenge. The incentive which sometimes exists because of a restriction would disappear if the restriction were removed, therefore no one challenges it. Again, the prices fixed by State milk control agencies often are acquiesced in by milk dealers who would lose the protection of retail price fixing if

they used unregulated sources so extensively as to discredit the whole law. Some firms reported that the cost of legal services in defeating a restrictive licensing policy of a single town far exceeded the possible gross income from sales in that town for many years to come—the action would be worth the expense only if other towns, by the example, were persuaded to forego their restrictions.

Legal action by industry as a solution of some restrictive regulations may be ineffectual if the regulation lies within what the courts would consider a reasonable exercise of administrative judgment. This is particularly true where the objective criteria for a standard are indefinite and experts may disagree widely. The whole category of regulations which burden or restrict because they are different and thus bar reciprocity appears to have resisted legal attack for this reason.

Within the range of discretion that is left for administrative judgment, industry can contribute to improved regulation by furnishing adequate evidence. Most legislative and administrative procedures provide some opportunities for appearing at hearings held preliminary to enacting, issuing or amending laws or regulations. A considerable responsibility rests on industry to make the most of these opportunities.

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APPENDIX A. SOURCES OF PRIMARY DATA

PERSONAL INTERVIEWS

Three separate questionnaires were prepared for use in personal interviews. One set of interviews was held with milk dealers in markets where price relationships indicated an incentive for making inshipments of milk. Another set was with operators of milk plants which had been active in supplying some of the long-distance shipments of bulk milk. A third set was with milk distributors who were known to have been notably successful in the use of some merchandising innovation, or who were operating in markets where merchandising methods were strongly influenced by regulations.

Thirty-nine milk dealers in 14 markets were interviewed to learn their experience with inshipments of milk in the past, their attitude toward possible lower-priced sources, influence of sanitary regulations on the availability of supplies, influence of transportation factors, and the price and consumption changes that might be expected if local laws and regulations were changed to permit milk to move more freely.

In these 14 markets, 25 other persons were interviewed to supplement the information obtained from milk dealers.

Visits were made to 8 firms which were sources for large quantities of milk shipped interregionally. The purpose of these visits was to learn their experiences with sanitary regulations of the cities to which they shipped, transportation methods used, selling arrangements used, and experiences with State and Federal milk price controls.

To cover problems in merchandising milk, 18 milk dealers were interviewed in 9 cities. The purpose was to obtain information as to the effect of regulations on methods of marketing or distributing bottled or packaged milk.

In addition to the foregoing, there were a number of interviews made to obtain a description of situations for which only parts of the questionnaires were relevant. Many of the interviews in the Northeast were in this category.

A total of 138 people was interviewed in connection with the study. Most of the visits were made between December 15, 1954, and January 31, 1955. The visits were widely distributed over the United States, and covered persons in a wide range of capacities with respect to the dairy industry (table 35).

TABLE 35.—*Personal interviews: Number and capacity of person interviewed*

Capacity of interviewee	North-east	North Central	South	West	Total
Milk plant operator	24	19	15	20	78
Bargaining cooperative official	9	4	1	2	16
Price control official	6	2	5	3	16
Health officer	4	1	2	0	7
Experiment station specialist	0	3	3	2	8
Other	2	0	5	6	13
Total	45	29	31	33	138

SURVEY OF HEALTH OFFICERS

The survey of health officers was designed to yield information regarding the requirements of local ordinances and regulations and the policies of local health departments relating to inspection and approval of milk for city consumption. To obtain this information mail questionnaires were set to health officers in charge of full-time local health units with jurisdiction over urban places of 25,000 population or more.

Full-time local health units are responsible for milk inspection in 355 of the 484 urban places with more than 25,000 population in the United States (table 36). In the remainder of the urban places, milk inspection is the responsibility of either State health districts or local health districts. Only full-time health units were included in the survey because they were responsible for milk inspection in cities with local laws, regulations, or policies affecting the movement and merchandising of milk.

Milk inspection in all cities over 250,000 population and in all but 5 cities over 100,000 population is under the control of full-time local health units. A substantial proportion of all urban places over 25,000 is under the jurisdiction of full-time local health units in the Northeast, South, and West. State and local health districts are more common in the North Central region than in the rest of the country.

Since milk inspection in 21 urban places with population over 25,000 was combined with one or more other urban places under a single local jurisdiction, questionnaires were sent to 334 health officers. Replies were received from 318 health officers and only 16 failed to respond. Since the questionnaire was not applicable in 6 jurisdictions, 312 questionnaires were available for tabulation.

Three mailings of the questionnaire were sent: the first during the week of December 14–20; the second on January 12; and the third on February 3 (table 37).

Response to this survey was unusually good for a mail questionnaire. In all, 95 percent of the questionnaires sent to health officers in charge of independent health units with responsibility for milk inspection in urban places of 25,000 population or more were returned completed. The high rate of return may possibly be attributed to the professional training of the respondents and the public service nature of the positions which they hold. But, in addition to this, milk sanitarians have in the past demonstrated their keen interest in the subject matter of the survey as evidenced by their research activities, and the content of professional writings published by many in this field. On the whole, the six-page questionnaires were adequately filled out and numerous pertinent comments were added by many respondents.

TABLE 36.—*Extent of coverage of full-time local health units: Urban places with population over 25,000*

Region and population class	Urban places over 25,000		Full-time local health units			
	Total	With full-time local health units	Milk inspection combined with other local unit	Questionnaire completed	Questionnaire not applicable	No response
Northeast:						
Over 1,000,000	2	2	0	2	0	0
500,000 to 1,000,000	3	3	0	3	0	0
250,000 to 500,000	3	3	0	3	0	0
100,000 to 250,000	23	22	0	19	0	3
50,000 to 100,000	40	34	0	32	1	1
25,000 to 50,000	66	42	5	34	2	1
Total	137	106	5	93	3	5
North-central:						
Over 1,000,000	2	2	0	2	0	0
500,000 to 1,000,000	5	5	0	5	0	0
250,000 to 500,000	7	7	0	7	0	0
100,000 to 250,000	14	11	0	11	0	0
50,000 to 100,000	40	29	0	25	0	4
25,000 to 50,000	86	29	1	26	2	0
Total	154	83	1	76	2	4
South:						
Over 1,000,000	0	0	0	0	0	0
500,000 to 1,000,000	4	4	0	4	0	0
250,000 to 500,000	7	7	0	7	0	0
100,000 to 250,000	21	20	0	17	0	3
50,000 to 100,000	32	22	0	21	0	1
25,000 to 50,000	64	59	3	55	0	1
Total	128	112	3	104	0	5
West:						
Over 1,000,000	1	1	0	1	0	0
500,000 to 1,000,000	1	1	0	0	0	1
250,000 to 500,000	6	6	0	6	0	0
100,000 to 250,000	7	7	0	7	0	0
50,000 to 100,000	14	12	4	7	1	0
25,000 to 50,000	36	27	8	18	0	1
Total	65	54	12	39	1	2
United States:						
Over 1,000,000	5	5	0	5	0	0
500,000 to 1,000,000	13	13	0	12	0	1
250,000 to 500,000	23	23	0	23	0	0
100,000 to 250,000	65	60	0	54	0	6
50,000 to 100,000	126	97	4	85	2	6
25,000 to 50,000	252	157	17	133	4	3
Total	484	355	21	312	6	16

TABLE 37.—*Completed questionnaires received from three mailings, Dec. 14, 1954–Feb. 28, 1955*

Questionnaires sent		Questionnaires received		
Date mailed	Number	Week beginning	Number	Percent
First mailing, Dec. 14–20, 1954	[1] 328	Dec. 22, 1954	73	
		Dec. 29	79	
		Jan. 5, 1955	26	
Total			178	54
Second mailing, Jan. 12, 1955	150	Jan. 12, 1955	31	
		Jan. 19	61	
		Jan. 26	15	
		Feb. 2	10	
Total			117	36
Third mailing, Feb. 3, 1955	33	Feb. 9, 1955	13	
		Feb. 16	2	
		Feb. 23	2	
Total			17	5
Grand total			312	95

[1] Excludes questionnaires sent to six jurisdictions which indicated in letter replies that the questionnaire was not applicable.

APPENDIX B.—STATISTICS OF REGRESSION ANALYSES

TABLE 38.—*Statistics of regression analyses*

Regression statistics	Unit	Regression	
		Dealer's buying price on shortest highway distance from Eau Claire, Wis.	Blend price on shortest highway distance from Eau Claire, Wis.
Regression coefficient	Dollars per mile	[1] +0.001919	[1] +0.001353
Regression constant	Dollars per hundredweight.	3.54	3.43
Coefficient of determination		.75	.51
Coefficient of correlation		[1] +.86	[1] +.71
Standard error of estimate	Dollars per hundredweight.	±.42	±.43
Average price	Dollars per hundredweight.	5.18	4.44
Standard deviation of price	Dollars per hundredweight.	±.83	±.60
Average distance	Miles	854	747
Standard deviation of distance	Miles	±374	±317
Number of markets	Number	143	58

[1] Very highly significant.

APPENDIX C. TRENDS IN MARKETING AND UTILIZATION OF MILK BY AREAS

DEFINITION OF GEOGRAPHICAL AREAS

The areas used for the analysis presented in this section and for the analysis of the effects on prices and quantities in table 31 depart from standard census regions commonly used. States were grouped into six areas: East, Midwest, South, Plains, Mountain, and Pacific, to provide combinations of States more meaningful to the analysis than those afforded by the census groupings.

East includes Maine, New Hampshire, Vermont, New York, Massachusetts, Connecticut, Rhode Island, Pennsylvania, New Jersey, Delaware, Maryland, Virginia, and the District of Columbia.

Midwest includes Wisconsin, Minnesota, Iowa, Illinois, Missouri, Indiana, Ohio, Kentucky, Michigan, and West Virginia.

South includes North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Louisiana, Arkansas, Oklahoma, Texas, and Tennessee.

Plains includes North Dakota, South Dakota, Nebraska and Kansas.

Mountain includes Montana, Wyoming, Colorado, New Mexico, Arizona, Utah, Nevada, and Idaho.

Pacific includes Washington, Oregon, and California.

TABLE 39.—*Milk and cream marketed by farmers, whole milk equivalent, 1935–54*

[Index numbers 1935–39=100]

Year	East	Midwest	South	Plains	Mountain	Pacific
1935	96	95	85	102	94	96
1936	99	98	92	101	99	98
1937	100	98	101	93	97	99
1938	102	104	112	100	102	102
1939	103	105	110	105	108	105
1940	108	109	109	109	112	110
1941	112	117	121	120	121	114
1942	116	122	130	127	127	116
1943	113	120	135	126	128	116
1944	116	120	137	116	127	121
1945	121	127	137	109	124	123
1946	117	126	128	106	117	123
1947	122	125	127	103	116	124
1948	120	120	126	97	111	120
1949	131	125	135	94	108	121
1950	133	124	142	97	111	123
1951	132	122	139	94	107	121
1952	135	123	141	91	108	123
1953	143	131	156	97	117	133
1954	146	134	161	99	122	141

TABLE 40.—*Whole milk equivalent of manufactured dairy products other than ice cream as a percentage of net total marketing of milk and cream, 1935–53*

Year	East	Midwest	South	Plains	Mountain	Pacific
1935	10.5	76.9	40.6	72.2	64.9	54.7
1936	10.6	75.7	39.0	69.9	67.0	53.1
1937	10.5	73.9	40.4	74.4	69.0	52.8
1938	10.5	76.4	41.7	74.9	70.3	53.1
1939	10.3	74.2	38.7	78.5	67.1	51.9
1940	11.6	75.7	38.1	80.1	66.4	53.0
1941	11.5	76.6	40.5	77.9	65.2	52.6
1942	13.1	73.5	35.1	73.4	61.8	46.6
1943	13.6	71.2	32.3	71.6	60.8	41.7
1944	13.4	68.0	31.7	67.2	60.4	42.7
1945	12.8	66.1	31.9	65.1	55.8	36.0
1946	7.6	57.9	26.6	67.0	46.9	32.3
1947	9.9	64.8	29.7	69.6	55.7	37.3
1948	9.1	63.3	27.7	69.1	55.2	35.2
1949	12.2	66.5	26.8	69.0	54.0	34.5
1950	12.5	69.9	25.2	69.9	55.7	34.1
1951	10.1	62.3	21.4	68.7	54.9	29.9
1952	10.7	60.9	21.1	66.5	50.2	27.4
1953	11.6	63.7	24.7	70.6	54.5	30.1

TABLE 41.—*Proportion of net total marketing of milk and cream used in manufactured dairy products, 1935–53*

[Percent]

Year	East	Midwest	South	Plains	Mountain	Pacific
1935	20.0	79.7	46.2	73.6	68.2	58.9
1936	21.2	78.9	44.7	73.2	70.8	58.2
1937	22.2	77.6	46.2	76.5	73.5	58.2
1938	21.9	79.8	47.0	76.7	74.3	58.4
1939	22.2	77.9	44.5	80.4	71.1	58.1
1940	23.2	79.4	44.4	82.0	70.6	59.5
1941	24.9	80.9	48.2	79.9	69.5	59.8
1942	25.4	78.0	45.2	75.7	67.2	55.6
1943	24.9	74.4	41.9	73.4	65.0	49.1
1944	25.0	71.3	41.3	69.2	64.7	50.6
1945	25.2	69.6	41.8	67.4	60.4	44.6
1946	27.2	64.0	43.0	71.4	54.5	45.0
1947	27.2	70.5	43.9	73.8	63.1	48.5
1948	25.4	68.8	41.4	73.3	62.6	45.3
1949	27.2	71.7	39.2	73.2	61.8	44.4
1950	27.2	70.8	37.6	74.0	63.8	44.5
1951	25.4	67.7	34.6	72.9	63.5	41.1
1952	26.2	66.5	34.5	71.2	59.6	39.4
1953	26.8	69.2	37.0	75.1	63.5	41.4

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